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PATENTS FOR INVENTIONS.

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OF

Specifications

RELATING TO

PRINTING.

PART II.—A.D. 1858-1861.

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PREFACE.

THE Indexes to Patents are now so numerous and costly, as to be placed beyond the reach of a large number of inventors and others, to whom they have become indispensable.

To obviate this difficulty, short abstracts or abridgments of the Specifications of Patents under each head of Invention have been prepared for publication separately, and so arranged as to form at once a Chronological, Subject-matter, Reference, and Alphabetical Index to the class to which they relate. As these publications do not supersede the necessity for consulting the Specifications, the prices at which the latter are sold have been added.

The number of Specifications at this time printed and published is nearly 50,000. A large proportion of the Specifications enrolled under the old law, previous to 1852, embrace several distinct Inventions, and many of those filed under the new law of 1852 indicate various applications of the single Invention to which the Patent is limited. Considering, therefore, the large number of Inventions and applications of Inventions to be separately dealt with, it cannot be doubted that several properly belonging to the group which forms the subject of this volume have been overlooked. In the progress of the whole work such omissions will, from time to time, become apparent, and be supplied in second or supplemental editions.

B. WOODCROFT.

August 1864.

INDEX OF NAMES.

[Those printed in *Italics* and within parentheses are the names of the parties by whom the Inventions have been communicated to the Patentees. For names of persons otherwise connected with Inventions noticed in this work, see "Index of Subject Matter," post, p. 179.]

	Page		Page
Aggio.....	142	Bradbury	40
Alexander	138	<i>Bradford</i>	9
<i>Aner</i>	85	Bremner	168
Annable	107	Brooman.....	38, 46
Applegath.....	10, 89, 96	———, (Dupuy)	77
Asser	107	———, (Melotte and	
Atkinson	97	Thiesset)	95
<i>Aufray</i>	171	———, (Prevost).....	176
		Burke	68
Baggs	24	Butler	120
Bagster	97		
Bailey	165	Clarke, Jas.	63
Banks	165	———, Jno.....	71, 145
Barnes	37	———, W.	147
Barnwell	128	———, (Aufray and	
Barre, J. H.	86	Tabar)	171
———, J. M.	86	Coates	47
Bauerrichter	17	Coathupe	169
Baxter	42	Collignon	91
Beatty	138	Collins	12, 40, 87
Bell	35	Conisbee	3
<i>Bénèche</i>	127	Cook, H.	172
Beniowski	136	———, W.	172
Bentley	55	<i>Corduan</i>	116
Beniowski, R. (Shaw)	84	Cunningham	6, 33
———, C.	89	<i>Cutting</i>	9
Betts	30		
Bigland	32	Dalglish.....	137
Birkbeck (Normand)	153	Davies, C. L.	125
Bishop	21	———, G. (Aner)	85
Black	37	Davis, D.	103
Blanche.....	38	———, R.	103
Blench	107	<i>Debons</i>	175
Boot	19	De La Ferté (Garnier).....	102
Bourquin	173	Delauretis	118

	Page		Page
Dellagana	149, 167	Harton	143
Denny	175	Henry (Despréaux)	173
Despréaux	173	Hill	148
Dick	75	Hitchcock	129
Dolby	41	Horman	150
Doley	32	Hughes, D. E.	22
Dowling, J.	151	——, E. T. (Corduan)	116
——, J. jun.	151	——, H.	148
Downing	154	Huguet	119
Draper	51		
Dubois	113	Imray	35
Dujardin	60, 106	Ingle, H.	1, 164
Dulos	105	——, J.	164
Dunnett	162		
Dupuy	77	Jacob (Kooch)	163
		Jacquín (Garnier)	15
Eidlitz	111	Johnson, J. H. (Kessler and Michiels)	156
		——, (Mc El- heran)	19
Faure	54	——, J. R.	97
Felt	170	Joy	141
Flounders	126		
Fulton	94	Kendall	65
		Kershaw	119
Galli	12	Kessler	156
Galpin	82	Kooch	163
Garnier	15, 102		
Gaskill	129	Laffitte	140
Gates	41	Lafon	157
Gedge (Bénèche)	127	Larcher, E. B.	129
George	91, 159	——, E. M.	129
Gillett	140	Larsonnier	38
Gilmer	93	Lauder	39
Girerd	24	Lawson	98
Glen	135	Lebourgeois	88
Godchaux	97	Lee	92
Gottgetreu	17	Lewis	159
Grant	39	Low	113
Gray	5	Luis (Faure)	54
Grimshaw	101		
Grove	146		
		Mackenzie	67
Hamilton, J.	2	Mac Nab	62
——, T.	2	Macdonald	74
Harland	158, 177	Maliszewski	150
Harrild, H.	142	Mason	45, 46, 79
——, R.	142	McElheran	19
Hart	70		

INDEX OF NAMES.

vii

	Page		Page
<i>Melotte</i>	95	Pitman (Smith)	11
<i>Mennons</i> (Violon)	163	Porteus	68
— (Debons and		Poulter	122
Denny)	175	Prentiss	135
<i>Michiels</i>	156	<i>Prevost</i>	176
Mitchell	151		
Moore	69	Reynolds	104
Morgan	52	Rolland	81
Morse	70	Rollason	128
Moss	49	Rostaing	100
<i>Muggeridge</i>	130	Russell	16, 133
Muir, W.	3		
—, F.	48, 73	Saillard	59
—, J.	48	Saleres	164
Müller	15	Salter	53
		Schaub	9, 29, 36
Napier, J. M.	42, 92	Sharp	155
—, J.	153	Shaw, J. B.	121
Newton, A. V. (Gilmer) ...	93	—, J. E.	121
(Hitchcock,		<i>Shaw, W.</i>	84
E. B. Larcher, E. M.		—, P.	110
Larcher, Talbot and		Sheppard (Muggeridge) ...	130
Tisdale)	129	Shipman (Kendall)	65
(Oakes) ...	131	Service	25
W. E.	31, 44	Siemens, C. W. (Siemens,	
—, — (Cutting		W.)	61
and Bradford)	9	<i>Siemens, W.</i>	61
—, — (Stübbe) ...	78	Sims	58
—, — (Davis, R.		<i>Smith, S. J.</i>	11
and Davis, D.)	103	Smith, Wm.	41
—, — (Huguet) ...	119	—, R.	50
—, — (Tucker) ...	152	—, J.	55
Niay	177	—, W. H.	55
Nissen	115	—, T. J.	101
<i>Normand</i>	153	—, Willoughby	102
Northen	31	Southorn	114
		Sprye	104
<i>Oakes</i>	131	<i>Stübbe</i>	78
Parkes, Alex.	74	<i>Tabar</i>	171
—, H.	83	<i>Talbot</i>	129
Parlby	134	Taylor	120
Parsons	151	Tearne	56
Patrick	72	Thibault	18
Pavyer, B. (Pavyer, J. G.)	118	<i>Thiesset</i>	95
<i>Pavyer, J. G.</i>	118	Thomas	13
Petter	82	Thompson	57, 80

	Page		Page
Tirebuck	76	Wheatley	4
Tisdale	129	Wheatstone, C.	26
Tregaskis	1	White	134
Tuckett	132	Whittaker	64
Turner	162	Wiley	144
Ulmer	110	Wilkinson	78
Violon	163	Winkler	23
Walker	37	Wohlgemuth	24
Wallis	60, 115	Wood, J. T.	90
Waltham	169	——, J.	126
Watts	143	Worrall	32
West	144	Wright (Shaw)	110
		Wynants	171
		Young	28, 65, 108, 123

PRINTING.

A.D. 1858, January 11.—N° 43.

TREGASKIS, WILLIAM.—(*Provisional protection only.*)—"Improvements in the printing press."

The invention "consists in having the table or bed plate of the press on which the types are arranged firmly united to, and standing on legs or a frame, instead of sliding under the platten; one end of this bed plate is formed with guide grooves for rods to slide up and down in, which rods are united to the end of the platten by hinge joints. The opposite end of the bed plate has similar guide grooves to receive the ends of rods having hooks or eye holes to take hold of the end of the platten. These two sets of rods are combined and acted on by levers and other mechanical means, so as to draw the platten down on the types to produce the required impression. When an impression is taken the platten is released, the hook or eyed ends of the rods are immediately disengaged from the platten, which is then turned up by hand into the inclined position of the tympan; in ordinary presses the weight of the platen resting on the hinge joints only. To render this operation of turning up the platten easy of execution, the weight of the platen is balanced, so that only sufficient power is required to overcome the inertia of the balanced platten and friction of the hinge joints. The frisket and tympan will be worked as at present with the usual appendages of blanket, parchment, &c. The platten will be fixed at the back of the tympan."

[Printed, &c. No Drawing.]

A.D. 1858, January 14.—N° 64.

INGLE, HENRY.—"Improvements in printing machines."

The invention consists in imparting the to-and-fro motions to the table carrying the types or printing matter from a sector or quadrant in the centre of the machine, or two sectors or quadrants,

PR.

one on each side of the machine, made to rock, and connected by steel or other suitable bands or chains to the ends of the table, and in driving the cylinder or drum carrying the paper by means of a rack or racks which work into a toothed wheel loose upon the shaft of the cylinder. Upon the cylinder is a ratchet, which causes the cylinder and wheel to move together when the rack upon the table moves in one direction, but permits the cylinder to remain stationary, and moves the wheel only when going in the contrary direction.

[Printed, 10d. Drawing.]

A.D. 1858, January 19.—N° 81.

HAMILTON, THOMAS, and HAMILTON, JAMES.—"Implements in holders or bobbins for holding or containing yarn or thread, and in turning, cutting, shaping, and reducing wood and other substances."

One of the subjects of this Patent is a system or mode of arranging the cutting tools used in turning machinery, so that they may be caused to traverse through a circular, elliptical, or other curved path at the will of the operator, and an "arrangement and construction of machinery for cutting designs or figures in wooden or other blocks on which the mechanical details are so arranged that the cutting drill may be moved at the will of the operator in any direction over the surface of the block, or be caused to move in accordance with the motion of a style or pointer as it traverses over the surface of a pattern. . . ."

"In cutting out the faces of blocks, such as are used for printing and for other purposes, rotatory tools governed by a pentagraphic movement are used. The block to be cut is secured upon a proper base, and over it is set the pentagraph movement. The actuating power for the cutting tools is derived from a belt pulley, from which pulley other belts pass round suitable pulleys carried upon studs on the pentagraphic movement, so as to convey the revolution to the vertical mandril of an adjustable frame upon the free arm of the pentagraph. The pentagraphic action is fitted with guiding and elevating and depressing levers, so that the operator can direct the rotatory cutting action of the necessary tools to whatever part of the design he thinks proper."

Printed, 1s. Drawings.]

A.D. 1858, January 20.—N° 97.

MUIR, WILLIAM.—"Improvements in stands for letter-copying presses and other small machines."

The invention consists "in making the bottom plate of letter-copying presses with recesses or holes to receive the legs of the stand, also in making such recesses or holes in a plate or frame on which a copying press of the usual construction is placed and held between ribs or otherwise." The legs of the stand are made by preference of iron, and may be connected by stretchers or by the supports for the drawers, or by either or both. "Such stands may also be employed to support sewing machines, lithographic presses, knife-cleaning machines, and other small machines, such as have hitherto been fixed upon tables."

[Printed, 10d. Drawings.]

A.D. 1858, January 20.—N° 103.

CONISBEE, WILLIAM.—"Improvements in printing machines."

The printing cylinder is connected by direct graving with the type surface by a wheel fixed on the end of the cylinder, and working in a rack fixed on the table, the cylinder being "so adjusted by its wheel with the rack on the table that the gripper edges, or those parts of the cylinder at which the sheets of paper to be printed are taken, shall have the same relative distance from the surface of the table at each extremity of its traverse."

At a short distance from each gripper edge of the cylinder is a shaft parallel with the edge, and working in bearings at each end of the cylinder. On each gripper bar or shaft are adjustable gripper stocks, the grippers are partially grooved from end to end to enable them to be adjusted to the various sizes of paper. On the end of each gripper shaft is a crank, at the extremity of which is a roller working freely on a fixed stud in the crank. On the inside of the bearings in which the cylinder works is an incline, so placed that the crank on the end of the gripper shaft is partially turned, and the grippers opened for the purpose of taking the sheet of paper from the feed table, which is advanced for that purpose by means of two cams alternately as each set of grippers are opened for that purpose. The feed tables work in slides mounted on the framing of the machine horizontally, the back part hinged to the bottom frame, the front part being elevated or

depressed by two eccentrics mounted on a shaft fitted in the bottom frame of the feed table, and fixed in its position by a ratchet and pawl attached. There is also in connection with the feed board a shaft, which is grooved partially from end to end, and worked in two bearings at each side parallel with the front edge, but with its axis below the upper surface of the feed board. On the shaft, and adjustable by means of screws, are mounted register stocks, on the upper face of which register marks or indices are fixed, which are slotted or grooved partially from end to end, but having a lip or projections at the point, extending a short distance above the upper surface of the feed table. On the end of the shaft outside of bearing is a lever or trigger, and on the side of the framing a stud or stock, so that the feed board is brought forward and the lever is brought in contact with the stud, and the register marks are depressed below the level of the board at the time the grippers close by the return of the cylinder, and the sheet, having been laid previously to the marks, is left free of obstruction to be taken. In connection with a cam sling connected with a cam fixed on the main shaft, is an excentric cam roller, the excentricity of which is rather more than the throw of the cam. The excentric is turned half round when it is desired to use the machine for printing separate sheets of paper of various sizes, which are fed or supplied at each end of the machine. Each sheet, after being printed, is delivered to the opposite side to that at which it was fed, the cylinder working at the same horizontal level during the process. The same machine may be used to print sheets of paper either at both ends or at one end only at a time. This is done by turning the excentric cam roller half round, which brings the cylinder in connection with the cam by means of connecting rods, in order that the cylinder may be lifted off the form after the sheet is printed.

[Printed, 1s. 2d. Drawings.]

A.D. 1858, January 21.—N^o 105.

WHEATLEY, JAMES HENRY.—(*Provisional protection only.*)
—“Improvements in printing machines.”

These consist “of combining the essential features of the “cylinder machine with those of the platen or tympan machine, “and obtaining the speed of the one and the accuracy of the other.” The tympan is similar to that of the Stanhope printing press, and

is used with a cylinder. The printing tables are placed under the cylinder and tympan. On these tables the type is placed, and they are worked backwards and forwards by means of a cam fixed on a shaft underneath the printing tables. This cam is fitted with one stop, which is used to allow time to lay the sheet on the tympan previous to its being printed, and also to remove it afterwards; the stop is part of the periphery of the cam, cut away in a slightly circular form, so as to allow time to lay the sheet on when the tables are out to their full extent. "In preference I use one stop on this cam, instead of two as they are generally used. The cylinder is allowed to rise and fall a little in its bearings, and the springs are provided to assist their vertical play."

[Printed, *ed.* Drawings.]

A.D. 1858, February 2.—N^o 192.

GRAY, JOHN.—"Improvements in printing machinery."

These relate to letterpress, and particularly to newspaper printing, and consist of the total separation of the type table from the machine, "for the purpose of making up the forms or type thereon, instead of making them up as at present in 'chesses' or on turtles' . . . to be afterwards conveyed to the type tables." The type table of each machine, instead of being a fixed portion of the machine, is moveable *ad libitum*. It consists of two distinct parts, the one the type carriage and the other the type table. The type carriage is fixed within a framework of the machine, constituting a very strong iron frame for the reception of the type table, which fits it exactly on every side. On the sides of the type table are fixed the inking roller bearer, the cylinder bearers, and two strong bars, ("being substitutes for the sides of the chesses commonly used,) whilst two other bars, one of which is moveable and the other fixed, will substitute the usual chesses at the head and feet of the pages." The type table has four small steel wheels below it, for the purpose of elevating itself and contents to the extent of three-eighths of an inch above the type carriage, "until when rolled thereon it reaches its destination, when the wheels are to be let down into the type carriage in manner after mentioned, thus bringing the type table together with its weighty contents down upon the carriage, on every part of which it is to bear equally. Corresponding with the type carriage above described, each

“ machine is supplied with an imposing table, three feet high, on
 “ which the types are to be made up into form on the type table.
 “ Each imposing table runs to and from its machine on a rail-
 “ way, and whenever the form of types is ready, the imposing
 “ table containing it is drawn from its place up to the edge of
 “ the machine. To allow of this one side of each machine is
 “ entirely clear of works below the top surface of the frame-
 “ work. The table, with the form of types thereon, is then
 “ drawn upon the machine and the empty imposing table re-
 “ turned to its place. Hence the top of the imposing table,
 “ the framework of the machine, and the type carriage, are of
 “ perfectly equal height ” (about three feet). In like manner
 when the printing is over, the form of types and type table
 will be raised three-eighths of an inch, drawn back upon the
 imposing table, and returned to the place whence they came.
 The raising and lowering the type to the extent of three-eighths
 of an inch only is effected on the imposing table by means of four
 male and female screws, the latter being fixtures. “ These
 “ screws have polished ends, and when up they will be flush
 “ with, and form a part of the level surface of the imposing
 “ table, the entire weight of the type table now being on its
 “ own wheels, but when the screws are let down, the type table
 “ and its contents will fall three-eighths of an inch, thus reliev-
 “ ing the wheels, and throwing the whole weight upon the im-
 “ posing table. In like manner four female screws are placed in
 “ corresponding situations in the type carriage, whilst the ends
 “ of the male screws therein when up will be flush with the top
 “ surface of the carriage for the reception of the four wheels
 “ supporting the type table, which being brought to rest upon
 “ the ends of the screws, the screws are then to be lowered, thus
 “ relieving the wheels and bringing down the type table upon
 “ the carriage. Suitable steps are applied on the type carriages
 “ and imposing table, brought up to which the wheels below the
 “ the type table will stand on the exact centre of the ends of the
 “ screws.”

[Printed 4d. No Drawings.]

A.D. 1858, February 8.—N° 231.

CUNNINGHAM, ROBERT.—(*Provisional protection only.*)—
 “ Improvements in, or connected with, the production of letter

“press printing surfaces, and surfaces used in reproducing ornamental patterns or devices by printing or otherwise.”

The “improvements, as carried out under some of the most important of their modifications, are especially applicable to apparatus for composing and distributing types used in letter-press printing.” In one arrangement the types are contained in a series of narrow grooves, all the types in any one groove being of the same name. These grooves are arranged as closely together as possible, their sides and bottoms being formed of polished material, such as glass, offering very little friction to the movement of the types. The composing case is arranged either horizontally, or with a certain inclination down towards the front of the machine, in which direction also the files of types move as they are used. A channel or race runs horizontally in front of, and at right angles to, the type grooves, the top of such channel nearly coinciding with the bottoms of the type grooves, whilst its left-hand end opens upon the composing plate or table (corresponding to the ordinary composing stick). The types are successively selected by means of finger-keys, furnished with “depressors,” which push down the lowest or front individual of the corresponding file of types into the race, along which it is moved to the composing plate or table by means of a species of piston or picker worked by a treadle. At the commencement of a page or column the types are pushed by the picker between head and foot-line guides on the composing plate or table, and up against a frictional or other brake or stop, which is close to the mouth of the race at the commencement of a line, but which gradually recedes therefrom as the types accumulate in the formation of a line. On the completion of the line a catch is set free, and permits a movement to come into action, which shifts forward the head and foot-line guides the depth of a line, carrying the line of types with them, the foot-line guide then recedes to its former position, and there is thus formed between it and the first line of types a space just large enough for the next line. When the foot-line guide has receded, the brake or stop moves up to the mouth of the race, and another line of types is composed, as before, the movement of the head and foot-line guides being repeated on the completion of each line of types.

“Provision may be made for distributing the types in the machine just described as arranged for composing. The page or column

“ of types to be distributed is placed on the composing plate or
“ table in a reversed position, and the head and foot-line guides are
“ moved at the proper intervals to bring a new line in a line with
“ the race as the distribution of each preceding line is completed.
“ The types are then drawn one by one into the race by the
“ picker, suitably provided with a species of sucking or catching
“ apparatus for this purpose. An adjustment is made in the
“ machine whereby the finger-keys on being put down cause
“ the picker to stop at a point in the race corresponding to the
“ type, instead of depressing a new type into the race, as when
“ composing. The effective length of the depressors is increased
“ by an adjustment on commencing to distribute, and when the
“ picker stops, the corresponding depressor pushes down the
“ type into its proper groove in what may be termed the ‘distributing case,’ and which is placed at a lower level than the
“ composing case, and has an inclination down away from the
“ race. Types thus placed in the heads of the grooves of the
“ distributing case either move down them by gravitation, or are
“ pushed down by a suitable movement to make way for others.
“ When the machine is used for distributing, the bottom of the
“ race is displaced, and a variety of other adjustments are made to
“ reverse the action of the picker and other parts. These reversing
“ contrivances are so arranged that the operator can actuate them
“ in the most simple manner, and he will thereby be enabled to
“ correct errors in the composition by distributing the incorrect
“ types and substituting fresh ones. A contrivance may be
“ adopted by means of which the finger-keys, being arranged to act
“ each on either of two types of different character (as roman
“ and italic for example), may be made to compose in either
“ of the characters by a single separate adjustment. The ‘copy,’
“ impression, or design, by means of which he composes or
“ distributes, is arranged before him at a convenient level upon
“ a roller or frame, and a straight-edge is adjusted at the line
“ which is at the time being composed or distributed. A simple
“ contrivance is employed by which as each line is completed a
“ fresh line is brought up to the proper level, and the necessary
“ adjustment may be brought about by a manual application
“ or by an automatic movement if the nature of the copy,
“ impression, or design admits of it.”

[Printed, 4d. No Drawings.]

A.D. 1858, February 22.—N° 341.

SCHAUB, GEORGE.—“A new improved manufacture of certain kinds of printing type and other printing surfaces.”

The invention consists in manufacturing the large printing types which are usually made of wood or of type metal mounted upon wood, and also manufacturing by the same method blocks, stereotypes, and such other printing surfaces as the said method is or may be applicable to.” The head or printing surface of the type of copper is made by electro-deposit, and attached to a body of cast iron hollow on its under side. “The type head is attached to the cast iron body by screws, pins, or otherwise, and I place between the type head and body gutta percha or other cement or composition or soft metal, which fills up the type head and causes it to embed itself firmly on the body. The type head may be strengthened by tin or solder fused to its back. The required height is given to the type by placing a number together face downwards upon a plane surface, and by a planing machine cutting away the edges of the type body.” The process described applies equally “to the manufacture of types, or ornamental blocks or stereotypes, or other printing surfaces printed from after the manner of types.” The type head or printing surface may also be made from sheet metal “by the well known process of raising in dies.”

[Printed, &c. Drawings.]

A.D. 1858, February 23.—N° 357.

NEWTON, WILLIAM EDWARD.—(*Communicated by A. Cutting and Lodowick H. Bradford, of Boston, Massachusetts, U.S.*)—“An improved process for producing photographic pictures or designs on the surface of stone or metals, so that impressions may be taken therefrom by the process of lithographic printing.”

The invention consists, firstly, in applying to the surface of a clean stone a peculiar solution of gum arabic which is deprived of its power of uniting closely with the stone, or of adhering firmly to its surface, until it has been subjected to the action of light. Secondly, in removing those portions of the gum which have not been acted upon by the light, by means of a solution of soap, which at the same time leaves upon the unlighted portions of the picture an insoluble soap to form the groundwork from which the picture is

printed, as in the ordinary lithographic process. The surface of the stone is covered with a composition consisting of a solution in water of gum arabic with sugar and bichromate of potass, the sugar retards the immediate fixing of the gum upon the stone, and the chromic salt causes it to become more firmly fixed or much less soluble on exposure to the light. The stone thus prepared is preserved in the dark until required. When the coating is dry "it may be exposed in the camera a suitable length of time " to fix the gum upon those parts of the picture where the lights " are to appear, or it may be covered by a negative, or a print or " picture to be produced. The stone is then washed with a solution of soap, which attacks the stone and removes the coating, " and fixes itself (or an insoluble soap formed by the mutual decomposition of the stone and the soap employed) upon the surface " in place of the coating removed. Where the gummed surface " has been entirely protected from the light the gum is easily removed, and the soap has free access to the stone, and the consequence is a thorough union of the soap with its surface; where " on the contrary the lights were strong, the gum, having been rendered much more insoluble, is protected from the action of " the soap, and is not affected by it. The stone having been " thoroughly washed with clean water and dried, now receives a " coating of ink from the roller, which uniting with the soap " already deposited thereon, serves to give additional body to the " picture, and shortly after the stone is ready for the printer."

[Printed, 4d. No Drawing.]

A.D. 1858, February 24.—N^o 372.

APPLEGATH, AUGUSTUS.—"Improvements in printing machinery."

The invention applies to machines in which the printing surface is on a cylinder and the paper is fed in in sheets. "Heretofore, "in such classes of machines, the printing rollers have been of "larger circumference than the length of the sheets of paper to "be printed thereby, by which arrangement comparatively few "printing rollers can be ranged round the cylinder carrying the "type or printing surfaces. My improvements consist in reducing "the size of the printing cylinders or rollers so that they may be "less in circumference than the length of the sheets of paper to

“ be printed thereby, and sometimes two or more feeding apparatus are applied to each printing roller or cylinder. In this way the number of printing rollers or cylinders work with a given diameter of cylinder, and, consequently, the number of impressions obtained from each revolution of the type cylinder may be increased. It is preferred that each of the printing rollers or cylinders should be wholly covered with blanket or felt. When working with such descriptions of printing machines, I in some cases apply a small roller or rollers with type or printing surfaces thereon, together with proper inking apparatus, to each of the printing rollers or cylinders. In this way I am enabled while printing the main portion of the sheet by the large type or printing cylinder as heretofore, to introduce, for instance, a heading in a different color, or, in fact, any matter which it is desirable to introduce, and this introduced matter may be changed without interfering with the form on the large printing cylinder.”

[Printed, *1s. 4d.* Drawings.]

A.D. 1858, February 25.—N^o 379.

PITMAN, JOHN TALBOT.—(*Communicated by Samuel J. Smith, of New York, U. S.*) (*Provisional protection only.*)—“Improve-
ments in hand-lever self-inking printing presses, for printing
cards, envelopes, bill-heads, and other articles.”

The invention relates to presses for printing envelopes, cards, and similar small articles. The printing surface is attached to a lever fitted “in such a manner that the face of the type come
up before inking into vertical position, so as to be readily
cleaned when necessary, and so that the operator can see after
inking the same that all parts have been uniformly inked. The
impression being given by turning the lever to a right angle
from the before-mentioned position, the inking roller is kept
to the type by a spring, and the lever arm on which it moves is
so adjusted to a set screw, that the type or printing surface
strikes the roller exactly in the position to ink the edge, roll
over the type, and then pass into an ink-table, where the ink is
distributed on the roller by an automatic arrangement of spiral
springs.”

[Printed, *4d.* No Drawing.]

A.D. 1858, February 27.—N° 391.

GALLI, LUIGI.—“A process of superseding wood engraving, “ which I call Gallitypy.”

The invention consists “in preparing wood or stone blocks “ of suitable thickness for the purpose of superseding the wood “ engravings at present used in typographical printing.” The plates are prepared with a soft or semi-fluid material, composed of very finely powdered chalk or of calcareous or other white earth, mixed with meal paste or freshly-made size. This composition is evenly spread over the surface of the block which is to be printed from. When the first coat is dry, it is smoothed over with a painter’s blade, a second layer is then laid over the first one, and successive layers applied until the coating is nearly one-eighth of an inch thick. When the last layer is quite dry it is polished over with sand paper, then a mastic varnish is lightly brushed over; after this first layer of varnish is thoroughly imbibed, several successive layers are spread over, these latter being composed of turpentine, oil, and bitumen, boiled together and mixed with the varnish before mentioned. “These coats are successively laid on until “ the surface has acquired a suitable hue, not too dark, but so as “ to allow lithographic pencil marks to be seen on its surface. “ The block is then lightly rubbed over with white oil, and it is “ ready to be drawn and engraved upon, which is done at once “ by tracing and etching any subject on it with a sharp steel “ point like a needle fitted in a small handle; the darkest shades “ are first traced in, then the lighter ones, and at last the white “ parts are deepened with suitable cutting and carving tools. “ When the figures are fully delineated and etched in, the block “ is ready for being printed from under typographical presses, in “ the same manner as a wood engraving, the parts that have not “ been touched with the etching-tool being inked as usual to pro- “ duce the dark lines whilst the etched or excavated parts give the “ white portions of the print or drawing in the usual manner.”

[Printed, &c. No Drawing.]

A.D. 1858, March 5.—N° 439.

COLLINS, HENRY GEORGE.—“An improved method of obtain- “ ing impressions on an enlarged or diminished scale from en- “ graved plates or other printing surfaces.”

" When I wish to obtain impressions on an enlarged scale of a design on an engraved plate or other printing surface, I print from the surface with transfer ink an impression on to a sheet of vulcanized india-rubber, which I then put into a frame and extend equally in all directions; and this result I ensure by measuring from time to time the distances between different marks made on the sheet when in an unextended state, and I adjust the tension until I find that these distances have all been increased in the same ratio. I then transfer from the extended sheet on to a prepared surface of stone or other material, and from this surface I print the enlarged impressions on the usual way; where the degree of extension required is greater than can be obtained at one operation, it is only necessary to repeat the process. By reversing the operation, I obtain reduced impressions of the design on the engraved plate or other printing surface, that is to say, by extending the elastic sheet equally in all directions by the method before described, and then printing on to it the transfer impressions, which after the sheet is released is put upon the stone or other prepared surface, from which the reduced impressions are printed."

(Printed, &c. No Drawing.)

A.D. 1868, March 22. N^o 592.

THOMAS, JAMES. "Improvements in machinery for counting, registering, or paying."

"The object of the invention is to effect the operations of counting or registering (similar to paying books, &c.), by means of more simple and durable machinery than heretofore employed for those purposes." Circular discs or wheels are used, each of which has its circumference divided into ten equal parts, marked 0, 1, 2, 9. At each of the divisions is formed a notch or rabbet-birth, to move the wheel or disc. Each disc, with the exception of the one intended to represent the highest denomination, is also provided with a rim or flange slightly larger in diameter than the disc, and having only one notch, which corresponds with notch 0 of the disc. "Any number of these wheels or discs (according to the number of figures contained in the highest denomination required to be indicated or registered) are placed side by side, with the line of their axes coinciding. The first disc on the right hand (representing units

" is attached to and revolves with an axis of its own ; the remain-
 " ing discs are situated and revolve upon a stud or axis attached
 " to the framing, and are kept from contact with each other
 " by means of washers fixed upon the stud. Above the row
 " of discs or wheels is placed a corresponding series of palls,
 " carried and capable of being moved forward simultaneously
 " by suitable levers working upon the axes of the discs. These
 " palls (with the exception of that one which takes into the
 " teeth of the units' wheel) rest upon the rims or flanges before
 " mentioned ; thus the pall for actuating the tens' wheel rests
 " upon the rim attached to the units' wheel, the pall for the
 " hundreds' wheel upon the rim of the tens' wheel, the pall of
 " the thousands' wheel upon the rim of the hundreds' wheel, and
 " so on. The palls are further provided with pins or other
 " projections, whereby any one of the palls resting on and
 " kept out of work by the rim or flange of its neighbouring
 " wheel, is made to support all the palls lying to its left, or, in
 " other words, to support the palls of all the wheels registering
 " higher denominations than its own. Hence before any par-
 " ticular pall can be set at liberty to fall and act upon its wheel
 " it is necessary that all the palls to its right shall be at
 " the ninth division of their respective wheels. It will now be
 " understood that if the discs be set so that the whole of the
 " zero characters may be situated in the same line and read
 " together (all the palls with the exception of the units resting
 " upon the rims or flanges of the discs as explained), and a
 " ~~forward motion~~ equal to one division be given to the palls, the
 " only wheel moved thereby will be the units, which will advance
 " one division. The same may be repeated until the units' wheel
 " marks 9, when the catch of the tens' wheel will immediately
 " fall into the notch cut in the rim of the units' wheel, and will
 " thereby be allowed to act upon its own wheel, so that at the
 " next movement of the levers, it will move the tens' wheel one
 " division forward, after which it will be again raised and kept
 " out of its work until the rim of the units' wheel, until the ninth
 " division again appears, when it will be moved another tooth,
 " and so on until the tens' wheel has been moved nine divisions, when the pall
 " of the hundreds' wheel will drop into the notch of the tens'
 " wheel rim, and at the next stroke move its wheel one division in
 " the same way as the tens' wheel had previously been acted upon

“ by its pall falling into the notch in the rim of the units’ wheel.
 “ The thousands’ wheel will be similarly acted upon at the tenth
 “ movement of the hundreds’ wheel, and so on throughout the
 “ whole series of wheels. The wheels or discs, before and after
 “ being moved as described, are retained in their position by
 “ suitable catches provided for the purpose. In employing my
 “ invention for paging or other purposes in connection with
 “ which it is required to print or take impressions from the
 “ numbers presented, I make use of an arrangement of palls,
 “ notches &c., acting in a manner similar to that already
 “ described, but placed (instead of externally) in suitable recesses
 “ formed within the wheels or discs, thereby leaving the outer
 “ circumferences or edges of the discs available for giving im-
 “ pressions as desired.”

[Printed, 1s. 4d. Drawings.]

A.D. 1858, March 23.—N° 600.

MÜLLER, HENRI LAURENT.—“Improvements in chromographic
 “ printing.”

By this invention “ any suitable number of colours ” may be
 printed at a single impression. It consists in causing the colours
 or pigments to be brought to a solid state, after they have
 been mixed up “ with any suitable binding material, such
 “ as water gum, resin, starch, dextrine, or others; then to give
 “ to the thus solidified colours or pigments suitable forms, and
 “ assemble them together side by side, according to the pattern
 “ or design, and in this assembled state make use of them as
 “ matrices, punches, blocks, or dies for printing with, after having
 “ previously moistened their surface, or the surface of the paper,
 “ fabric, or any body on which the coloured impression is to take
 “ place, with the same liquid that has served for mixing up the
 “ colours or pigments, or any other liquid by which a suitable
 “ quantity of the colour or pigments is dissolved, and thus caused
 “ to adhere to the surface to be imprinted.”

[Printed, 4s. No Drawing.]

A.D. 1858, March 29.—N° 667.

JACQUIN, EDMOND AUGUSTE.—(*Communicated by Henry
 Garnier, of Paris.*)—“An improvement in preparing plates for
 “ printing.”

The invention refers to engraved metal plates, and has for its object to render them more durable. It consists in "electro-depositing upon a copper or other comparatively soft metal plate engraved in the ordinary manner, a thin coating of iron." If a further number of impressions is required after this coating is worn through, "the worn coating of iron may be dissolved off from the plate, and a fresh coating of iron deposited thereon; afterwards the printing may be recommenced as before, and by thus from time to time renewing the coating of iron, almost any number of impressions may be taken from the engraved plate. In some cases, particularly when the plate is not engraved by hand, but by mechanical or chemical means, as is sometimes practised, it is convenient to coat the plate of copper or other metal with iron before producing the design upon the plate."

[Printed, *ad.* No Drawing.]

A.D. 1858, April 1.—N° 701.

RUSSELL, CHARLES GOURLEY.—"Improvements in machinery or apparatus for printing."

The invention consists in applying to printing cylinders, whether of metal, wood, or stone, two pairs of inking-rollers, and one pair of distributing rollers, in connection with a damping apparatus, and employing instead of the ink tables in the ordinary printing machines, an expanding and contracting drum or cylinder, the expansion being for the purpose of adapting the cylinder to the exact diameter of the printing cylinder, so that the speed of both circumferences shall be perfectly uniform, "which is a desideratum never before obtained." The distributing rollers are raised and lowered from the ink cylinder to the expanding and contracting cylinder, and the inking rollers from the latter to the printing cylinder, by means of one or more cams, working rods, "which operate upon certain arms or levers, to which the rollers are connected, a greater or less speed being obtained by employing change wheels." The driving shaft may be connected with the expanding cylinder or the ink feed cylinder, giving motion at the same time to the printing cylinder, the machinery being worked either by hand or power. The improved machinery can be advantageously applied to lithographic, typographic, zincographic, block, or any other description of surface printing.

[Printed, 10*d.* Drawings.]

A.D. 1858, April 9.—N° 770.

BAUERRICHTER, HENRY, and GOTTGETREU, CHARLES GUSTAVUS.—"Improvements in printing in gold, silver, bronze, " and other metal, on glass."

After stating that the patentee Gottgetreu had failed to bring to perfection an invention of "lithographic printing in oil and " varnish colours, and metal on glass, wood, papier mâché, " marble, metal, porcelain, or any other material that offers a " suitable surface," which had received provisional protection, the specification continues, "From a drawing on stone or zinc " plate we print on . . . tissue paper, with strong varnish mixed " with Venetian turpentine. This varnish printing is transferred " to glass in the following manner:—We lay the paper carefully " on the glass, and press it gently to it with a wet sponge, then " we go over it with a soft roller made expressly for this purpose. " Then we place a number, say, twenty glasses thus prepared on " one another, with something heavy on the top one, in order to " cause a sufficient pressure to ensure the papers adhering well to " the glasses. After being left in this state for about half an hour " the glasses are taken up again, soft stout paper is rolled on the " thin paper in order to absorb moisture therefrom, and we continue to roll, with a roller such as referred to, until the thin " paper adhering to the glass is quite dry, and all the lines of the " drawing or representation show through the paper. Then the " (thin) paper is carefully pulled off, leaving the varnish printing " in great perfection sticking to the glass. The glass is now " covered with leaf metal, gold, silver, or bronze, the rollers are " again gently drawn across, and the glass rubbed with the hand " or soft wool, to remove the metal from the other parts than " impressed by the varnish impression or design. After this the " glass presents the whole drawing or representation in gold, " silver, or other metal, and must be left to dry. The glass is " now ready to be coloured and coated, if so required . . . The " glass may, if desired, at the same side as the letters or other " device, be covered or partially so by a coating of paint or other " colouring matter, or cloth or other fabric, foil or other paper, " or material, as background. The roller we employ is constructed from wood, covered first with woollen cloth, then " with cotton velvet; and for facility of use, we, by preference,

“ apply it so as to turn freely in an iron fork or frame with a handle.”

[Printed, *4d.* No Drawing.]

A.D. 1858, April 10.—N^o 785.

THIBAUT, AMABLE CYPRIEN.—“ Improvements in the manufacture of paper-hangings, and in the machinery employed therein.”

The invention consists of: 1. A new process of imitating wood on paper-hangings, oil-cloths, &c., by means of thin surfaces or veneers of wood, and taking advantage of the natural structure of the fibres of the wood for forming the hollows and reliefs of the printing surface, these thin surfaces being coated with the colouring matter intended to supply the colour, and thus reproducing the veins, knots, or other natural formation of the wood. 2. Of a “ sliding printing machine,” for the manufacture of the printed papers, the machine being also applicable to printing from surfaces in relief or of a reverse character.

The thin sheets of wood (after being smoothed and polished to obliterate the marks of the saw) are dipped, in order to render them pliant, in a bath of water or liquid fat, according as it is wished to produce impressions in water or in oil. “ I then stretch them on a slab of marble, previously coated with paste or oil, according to the purpose intended; I then roll the carriage over the surface, after bringing down the pressing cylinder, which passing in contact with the sheets of veneer, causes them to adhere in all parts to the table. These sheets of veneer thus prepared serve immediately as the impressing surfaces. For wood too tender to resist the pressure of the carriage, after cutting it into veneers, I take casts thereof by means of galvanoplasty, or by the aid of any other known process, and I make use of these copper or other casts as the printing surfaces, which are exact counterparts of the wood, and I can further ornament these casts by engraving, so as to produce imitations of panels or ornaments. For imitating inlaid flooring, or marqueterie, I arrange the blocks or parts in thin pieces or veneers on the marble slab, to which I cause them to adhere, and I also repro-

“duce them, by means of galvanoplasty, to form an impressing or printing surface as before mentioned.”

The principal feature in the machine consists of plates, to the number of thirty or more, weighing about 11 lbs. each, placed in the direction of the machine's motion, and serving as detached or independent weights, to bear on the paper at any required point. Before setting the apparatus in motion the paper is drawn by hand, and after having passed through bars, and under a scraper, is fixed at the extremity of the table. The plates are then lowered on to the scraper, and bear upon the paper with all their weight. At this time the apparatus is pushed on to the rails of the table, the colour hopper opened by means of a stop, and the paper set in motion. “For printing from types in relief the hopper is replaced by inking cylinders or rollers; the rake or scraper by a pressing cylinder.”

[Printed, 1s. 4d. Drawings.]

A.D. 1858, April 16.—N° 823.

BOOT, ALFRED JAMES.—(*Provisional protection only.*)—“Improvements in machinery or apparatus for making labels.”

“I use case-hardened type to represent the letters or figures to be impressed on the labels, and place the same in a box or frame, tightening or keeping the type in its position by screws or wedges. I make a base plate with a mould to contain the label, and fix one or more set screws in the said base plate to adjust it to a level surface. The blank label being placed in the mould of the base plate, I fix the box or frame containing the type over the blank label, and by means of a screw, lever, or other power, give the necessary pressure to stamp or impress the type on the label, which is done in a moment; I then place the label so impressed between two surface plates, and give the necessary pressure to take off any roughness, or reduce any indentations that may have been made by impressing or stamping the label in the first process.”

[Printed, 4d. No Drawing.]

A.D. 1858, April 16.—N° 831.

JOHNSON, JOHN HENRY.—(*Communicated by John McEltheran, of Brooklyn, New York, U.S.*)—“Improvements in preparing printing surfaces.”

The invention relates : 1. To certain improved modes of preparing picture types or raised surfaces for the reproduction of landscapes, designs, &c. 2. To an improved mode of preparing typographic printing surfaces, "whereby the ordinary printing type is entirely superseded, and the tedious processes of setting and distributing the same consequently dispensed with." For the former the design is made on paper or other transparent material, and fastened to a plate of glass coated with wax on the opposite side to that on which the design is attached, clean wax is then applied over the whole surface under the influence of heat, so as to adhere thereto by entering the pores of the glass. The lines of the design are then traced through on to the wax, and with a brush more wax is applied over the lights, the thickness of the wax depending upon the intensity of the lights. The irregularities of the surface are then blended by passing the whole lightly over the flame of a spirit lamp. The plate is then "perfectly ready for the electro-typewriter, without the necessity for rolling or etching, or even for taking a plaster or other cast as in the case of wood cuts." Or the sheet of paper may be replaced by a plate of glass coated with wax, on which the design is traced as it is reflected in a camera.

Mode of printing "granotypes," producing at the same time typographic and lithographic effects. The granulated metallic surface here substituted for a stone one is thus prepared:—A thin wax coated sheet of glass. The drawing is placed beneath and traced through on the wax. The broad lights are then filled up as before, and a plaster cast taken of the whole. The cast when dry is varnished with cement in those parts which are to have a fine grain, and powdered siliceous or glass sprinkled over it. Cement is then applied to such parts only as require a coarser texture, such as foliage, drapery, foreground, &c., and a corresponding coarser grained sand applied at such parts. A facsimile is then produced in metal by electrotype or stereotype, and impressions taken in the common typographic printing presses.

The second part of the invention consists in the use of letter dies for producing impressions of letters in plates of a softer metal than the dies. An apparatus is described by which the impressions are all made to a uniform depth, so that a cast or electrotype may be taken and printed from in an ordinary printing press. In this apparatus a rotating letter disc or series of radial

arms is combined with a sliding plate and block capable of moving laterally and longitudinally, so as to space out the proper distances between the letters, while a slotted bridge-piece is applied for regulating the depth of impression, and guiding the die on to the required spot in the surface of the plate or coating thereof.

[Printed, 8d. Drawing.]

A.D. 1858, April 22.—N° 880.

BISHOP, WILLIAM.—"Improvements in machinery or apparatus for ticketing or labelling spools, bobbins, or reels, for adjusting the size thereof for sampling patterns, for printing labels or tickets, affixing postage or other stamps or labels, for cutting their edges and dividing them into given quantities and sizes."

This invention is an improvement on N° 1546 of 1854. For ticketing spools, bobbins, or reels, tubes of brass or other material are employed with knives or wedges as indentations at the top where the tickets are discharged. These knives (which resemble the point of a penknife broken from the blade about a quarter to half an inch and inverted) cut the tickets on the plug employed to deliver them being pressed, and form the wedge preventing the exit of more than one ticket at time.

For gumming the bobbins blocks of india-rubber are placed in tubes of sufficient substance to give a run of gum, "which may be put on as printers' ink or type, or the ticket may be wetted in the tube by saturated flags of calico or other material; this treatment may also with slight modification be applied to postage stamps and labels." The labels are cut by knives made fast on a frame, the substance to be cut being placed on another, one frame moving over or under the other, and cutting in the desired direction, circularly or otherwise. They are printed by means of punches bearing the design, which is then placed on a different coloured paper, "the outer rim with the names, &c., being also cut in the same manner of a different colour, so that the colour of the ground will show through the pattern cut on the surface paper." The whole are then gummed together, "forming an entirely new ticket without printing ink."

[Printed, 10d. Drawings.]

A.D. 1858, April 27.—N° 938.

HUGHES, DAVID EDWARD.—"Improvements in the means of, and apparatus for, transmitting signals and electric currents."

1. Improvements on Patent dated September 11, 1855. "In the specification of this Patent apparatus was described for transmitting printed messages simultaneously from opposite points through the same line wire, the apparatus at the distant stations receiving synchronous action by means of clockwork set in motion by the transmitted currents of electricity. The circuit for the currents was closed by a helical line of pins standing radially from the periphery of a rotating barrel, and coming into contact with levers raised by the depression of keys, which severally represented a letter of the alphabet. For this barrel I now propose to substitute as a circuit breaker a rotating arm, which is caused to travel (by means of clockwork) continuously over a ring of pins connected severally to their respective finger keys, which answer to the letters of the alphabet or other signs, and are free to rise as their respective keys are depressed and come in contact with the rotating arm, thereby completing the electric circuit. Instead of depending on the transmitted currents for ensuring the synchronous action of the clockwork of the two communicating instruments, a mechanical arrangement is provided enabling the operator at one end of the line to adjust the instrument at the opposite end, and when so adjusted, keep its type wheel in a position corresponding exactly with the type wheel. For this purpose the type wheel is mounted loosely on its shaft and driven by friction of contact. On an escapement arbor driven by the clockwork, is mounted a segment having one tooth, which takes into a ring of cavities formed on the type wheel, and corresponding in number with the spaces between the types. As each successive type is brought round to give an impression, the segment tooth engages with a cavity presented to it, and ensures the proper adjustment of the type wheel on its shaft, giving it a set backwards and forwards as required of the transmitting instrument." "By these means I simplify my printing telegraph apparatus, and at the same time render its action both rapid and sure, and besides sending a legible printed message which

“ requires no translation, I secure a printed copy of the transmitted message.”

The invention relates, secondly, to “ certain improved means of transmitting electric currents to distant stations, whether in connection with my improved printing instruments or with other electrical apparatus, the chief object being to expedite the transmission of a succession of electric currents over one and the same line wire.”

[Printed, 3s. 10d. Drawings.]

A.D. 1858, April 28.—No 949.

WINKLER, ALOIS.—“ Improvements in printing or producing impressions in gold, silver, and oil colours upon metallic plates, and in the mechanism employed therein.”

“ Lithographic copies of the required design are printed on a fine lined paper covered with paste, consisting two parts of gum and one part of meal. The paper is dried for a few hours and cut to the size of the printing plates. The colour or ink used is amalgamated with a strong oil varnish upon the grinding-stone, and nicely ground or rubbed. It is laid on with the common printing roller or cylinder. When printing with gold or silver (gold oil colours) the paper remains without the paste, and the printing is effected as above. After taking away the paper the printing is laid on with gold or silver. To print on the metallic plate a press is used, having a suitable frame, with a moveable bed plate for carrying the printing plate, &c. This moves longitudinally within the framing upon rails or slides, and has a counterbalance weight at the end. Upon this bed plate there is a flat piece of wood with edge plates for holding the printing plate, &c. to be printed, and the other end of the bed plate opposite to the counterbalance weight is a roller, and on to this the bed plate, &c. is pushed (the roller being immediately beneath it), and then the roller is worked by suitable handles and gearing connected therewith, whereby the bed, &c., with the printing plate, &c., is brought under a pressing bar which is brought down by lever and screw power, and the bed plate, &c., is kept rolling under the presser until completely drawn through, when the presser is to be relieved, and then the bed plate, &c., is drawn back by the counterbalance weight to its original position. The metallic plate in a dry state is taken,

“scraped with a prepared rush stone, and then is laid upon the above-mentioned flat piece of wood. Take the print out from the wetted paper, and place it on the fastened plate, which must be provided with some sheets of paper.”

[Printed, 8d. Drawings.]

A.D. 1858, May 22.—N° 1152.

BAGGS, ISHAM.—“Improvements in electric telegraphs, and in the apparatus employed therein and therewith, parts of which are applicable to other electrical purposes.”

The invention consists : 1. In the use of reservoirs on the principle of the Leyden jar at the receiving station, the principle being that of induction. 2. “To exalt the intensity of the induced electricity from a coil, such electricity is caused to accumulate in condensers or their electrical analogues arranged as a series of Leyden jars.” 3. Contrivances for the regulation of speed and synchronous discharge, where “a succession of makes and breaks of contact are required to be made with great velocity or regularity in developing the successive electrical impulses of the coil.” 4. Using “electricity to deflect flame, gases, vapors, or light bodies through stencilled plates or otherwise, in order to mark or record telegraphic communications.” 5. Causing “telegraphic communications from two or more instruments to pass simultaneously through the same wire without interference, by the employment of electricities differing in quantity and intensity from each other, so as to be only capable of acting each one respectively upon a different class of instrument at the receiving station or stations; that is to say, for instance, a magneto-electric or other electric current to deflect a needle; a quantity current through the same wire to effect decompositions on chemically prepared paper in another instrument; and a series of high intensity discharges through the same wire again to cause a succession of perforations in paper or other indications in a third instrument.” 6. Use of a peculiar description of coil.

[Printed, 8d. Drawings.]

A.D. 1858, May 31.—N° 1221.

GIRERD, JEAN BAPTISTE, and WOHLGEMUTH, PAUL FREDERICK.—(*Provisional protection only.*)—“Improvements in ornamental staining, dyeing, fixing designs, writing, letter-

“press and type printing and cyphering, and colours on wood or
 “any other substances, also extracting, transferring, or discharg-
 “ing colours from the same.”

The invention consists “in decorating different woods, ivory,
 “bone, metals, marbles, stones, paper, earthenware, porcelain,
 “terra cotta, and china wares, as well as every description of
 “textile fabrics, and fixing thereon an imperishable stain by
 “the agency of metallic salts and oxides. Various designs of
 “the most delicate and elaborate workmanship, and every style
 “of letterpress or type printing or writing, obtained by shapes,
 “forms, or configurations accurately modelled, designed, cut out,
 “or manufactured, such being placed on the different woods or
 “substances which are sought to be decorated, thus effectually
 “acting in such a manner (‘by the instrumentality of light and
 “shade on the surface’) as to preserve uniformly the original
 “ground forming the drawings, shapes, or configurations as are
 “sought to be reproduced from the influence of daylight or solar
 “rays, at the same time modifying any colours that may be
 “placed or that may be existing thereon, such result being ap-
 “plicable to decorations on every kind of mouldings, beadings,
 “and frames generally, as well as household furniture, marqueterie
 “ornaments, fancy articles hereinafter enumerated, house fittings
 “and decorations, parqueterie, musical instruments, billiard and
 “bagatelle boards, cues, caskets, cases, boxes, timepieces, clocks,
 “trays, tables, flower stands, tripods, vases, and every description
 “of earthenware and china wares, and every description of
 “carriages, &c., when the designs are fixed thereon. We improve
 “its general appearance by varnishing or French polishing, but
 “when the drawings obtained upon wood are required to be
 “transferred or applied on any other material, we, previous to
 “fixing, obtain by common pressure the transfer of the design,
 “and then submit the reproduction to mercurial fumes of sul-
 “phurated hydrogen, to pass it through a solution of chloride
 “of lime, or any other metallic salts acting as a developing
 “agent to the colours sought to be reproduced.”

[Printed, 4d. No Drawings.]

A.D. 1858, June 2.—N^o 1238.

SERVICE, DAVID.—“Improvements in apparatus for producing
 “printing surfaces.”

This invention relates to improvements in the machine known as "Wright's mould-making machine," for making wooden moulds for casting printing surfaces, and has for its object to obtain two moulds at one operation, the patterns or devices on such moulds being duplicates of each other if symmetrical, but reversed if not symmetrical. "In Wright's mould-making machine a tool heated by gas is made to reciprocate vertically by a treadle, so as to enter down into the wooden block placed below it and burn in the parts of the mould corresponding to the devices or raised portions of the casting, which is afterwards to be taken from it and used in printing. The pattern or device is formed or shaped by moving the wooden block by hand, the pattern or device being previously drawn or marked on its surface. According to the present invention, the reciprocating tool above the wooden block is connected by any convenient mechanical arrangement to a similar reciprocating tool which works into the wooden block from below, in such a way that the two tools act simultaneously, one entering the block downwards as the other enters it upwards; provision is made for heating the lower tool by means of gas and for producing an air current to cause the gas flames to be properly deflected upon the tool. The tools are by preference fitted into square sockets in their holders or so as to be incapable of turning, and arrangements are made for adjusting the positions of the tools. Thus the lower tool holder is made to turn and fix in any position, and the upper tool holder is made adjustable in two directions at right angles to each other by screws or otherwise, so that the upper tool can be placed directly in line with the lower tool. With this apparatus the pattern or device only requires to be drawn or put on the top side of the block, and whilst the operator moves the block, just as if he was producing only one mould by the ordinary machine, the improved machine makes two moulds simultaneously, one on each side of the wooden block, and one the reverse of the other."

[Printed, 10d. Drawings.]

A.D. 1858, June 2.—N° 1239.

WHEATSTONE, CHARLES.—"Improvements in electric telegraphs, and an apparatus connected therewith."

A strip or ribbon of paper perforated with apertures, grouped to

represent the letters of the alphabet and other signs, is placed in an instrument, associated with a rheomotor (or source of electric power), which on being set in motion moves it along, and causes it to act on two pins in such manner that when one of them is elevated the current is transmitted to the telegraphic circuit in one direction, and when the other is elevated, in the opposite direction; the elevations and depressions of the pins are governed by the apertures and intervening intervals. These currents following each other indifferently in the two opposite directions, act upon a printing or writing instrument at a distant station, in such manner as to produce corresponding marks on the ribbon of paper. The invention consists of: 1. An instrument for perforating the slips of paper with the apertures in the order required to form the message. 2. Apparatus called the "transmitter,"—the object of which is to receive the slips of paper prepared by the perforator, and to transmit the currents produced by a voltaic battery, or other rheomotor, in the order and direction corresponding to perforations in the slip. 3. Recording or printing apparatus, which prints or impresses legible marks on a strip of paper, corresponding in their arrangement with the apertures in the perforated paper. The pens or styles are depressed and elevated by their connection with the moving parts of the electro-magnets; they are entirely independent of each other in their action, and are so arranged that when the current passes through the coils of the electro-magnet in one direction, one of the pens is depressed, and when it passes in the contrary direction the other pen is depressed; when the currents cease, light springs restore the pens. The mode of supplying the pens with ink is as follows:—A reservoir about one-eighth of an inch deep is made in a piece of metal. At the bottom of this reservoir are two holes, sufficiently small to prevent by capillary attraction the ink from flowing through them. The ends of the pens are placed immediately above these small apertures, which they enter when the electro-magnets act upon them, carrying with them a sufficient charge of ink to make a legible mark on the strip of paper passing beneath them. The motion of the paper ribbon is produced and regulated by apparatus similar to those employed in other register or printing telegraphs. 4. Instrument called a "translator;" its object being to translate the telegraphic signs, consisting of successions of points or marks adopted in this system, into the

ordinary alphabetic characters. "In the system I have adopted, limiting the number of points in succession to four, thirty distinct characters are represented." 5. Modification of the electro-magnets of the recording instrument, which enables the pens to go back to their normal positions, when the currents in the telegraphic circuit cease, without the aid of reacting springs or permanent magnets. An extra coil of wire is wound round each of the electro-magnetic bars, which act on one side of each of the double magnetic needles appropriated to the two pens. These coils are entirely insulated from those connected with the telegraphic circuit, and forms together a short local circuit in which a feeble voltaic current continually circulates, in consequence of the interposition of a small rheomotor; by this current the needles are held, when no current exists in the telegraphic circuit, constantly attracted towards these electro-magnets. When, however, the current transmitted through the telegraphic circuit acts on the coils, besides its direct action to cause the deflection of one of the double needles and the detention of the other, it neutralizes the current of the local battery in that electro-magnet where its effect for the time would be disadvantageous. 6. Application of ribbons of paper prepared by the perforator and passed through the transmitter as above described, to produce successive motions of a magnetic needle or needles, corresponding to the signals required, either separately employed for this purpose, or in conjunction with the printing apparatus already mentioned.

[Printed, 2s. 10d. Drawings.]

A.D. 1858, June 14.—N° 1341.

YOUNG, JAMES HADDEN.—"Improvements in setting up (composing) and distributing types."

The improvements relate chiefly to details of the composing machine described in the Patentee's Patent of 1840, but they are also applicable to the machines in which a moveable belt or belts are used as a collecting medium. They are as follows:—1. Apparatus for obtaining a regulated alternate movement and stoppage of the step wheel. 2. Apparatus for obtaining a regulated alternate movement and stoppage of the types upon the inclined plane, in order to ensure their being properly taken off. 3. Making the steps of the wheel moveable. 4. Raising the types at the termination of the inclined plane off the same, and regulating the

action of the pusher so that it may not strike at an improper moment. 5. Application of electro-magnetism for regulating the types off the inclined plane and their delivery into the receiver. 6. Application of a small auxiliary composing machine, which may be fixed or detached from the larger composing machine. 7. Partially covering the channels down which the types slide on the inclined plane. 8. Application of a groove for small-bodied type in the bed of the channels of the inclined plane used for a larger-bodied type. 9. Application of a pusher through the aperture or apertures in the inclined plane to allow of superfluous types falling off the same. 10. Application of moveable blades to effect the distribution of types by means of their nicks.

[Printed, 1s. 4d. Drawings.]

A.D. 1858, June 22.—N° 1406.

SCHAUB, GEORGE.—“Improvements in the manufacture of
“ door plates, sign boards, and other surfaces having inscriptions,
“ designs, or ornaments thereon, and in the manufacture of de-
“ tached letters, designs, and ornaments to be affixed to walls
“ and sign-boards, or used for other like purposes.”

The invention consists in manufacturing the above surfaces of copper or other metal or alloy capable of being deposited by the process of electro-deposition, also in manufacturing detached letters, designs, and ornaments to be applied to walls and sign-boards, or used for other like purposes of copper or other metal or alloy capable of being deposited by the process of electro-deposition. For the former, “I first make pattern letters or
“ designs, and build up or compose therewith an inscription or
“ design similar to that to be manufactured, in the same way as
“ words and sentences are composed of printing types by printers.
“ If the plates to be produced require large margins, I add plain
“ metal pieces to the composed pattern so as to produce the
“ required margin, in the way that the printer fills up blank places
“ with quadrats and spaces; I take a mould or matrix of the
“ composed inscription or design by means of gutta percha or
“ plaster of Paris, or other suitable material. I cut away from
“ the mould produced, the relief joints produced between and at
“ the junctions of the single patterns. By means of the process
“ of electro-deposition, I obtain from the mould or matrix, a
“ deposit in copper, or other metal or alloy, which deposit consti-

“tutes the door plate,” or other ornamented surface. “Instead of using detached patterns and taking a mould from an inscription or design built up of the said detached patterns, I sometimes used detached metallic or other moulds or matrices, and build up or compose the inscription or design therewith, and obtain from the composed mould or matrix a direct deposit without the intermediate process of taking a cast to deposit upon. In making detached letters, designs, or ornaments, I first produce matrices or moulds of the pattern, letters, or designs, the said matrices being made of copper or electro-deposition, or made in any other manner. The said matrices are varnished in all the parts not occupied by the letters or designs, and an electro-deposit is made on the said matrix. The deposit of metal does not take place on the varnished parts, and the letters or designs produced are detached from one another. The said letters or designs may be used for making inscriptions, designs, or ornaments upon walls, sign-boards, wire gauze, window blinds, and for other like purposes.”

[Printed, 8d. Drawings.]

A.D. 1858, June 25.—N° 1432.

BETTS, JOHN.—(*Provisional protection only*).—Improvements “in obtaining surfaces on which to print maps and other designs.”

“I propose to take a woven or textile fabric or other suitable foundation material; I apply thereon a coating of pigment combined with boiled linseed oil, diluting the oil in case of need, with either alcoholic or resinous spirit, as may be preferred. This coating is laid on to the foundation with a brush and afterwards scraped and rubbed down, or the latter only, until I obtain a smooth, even, and absorbing surface. The occasional assistance of caloric is obtained if from the state of the atmosphere or other cause I require it. On the surface so prepared I print the map or design, finishing the work by sizing and varnishing. The pigments I use for white surfaces are carefully prepared zinc, lead, or other whites, but I prefer the former; I add pigments of various sorts and colours when I require various tints, and sometimes to improve the body of the composition or coating above described.”

[Printed, 4d. No Drawing.]

A.D. 1858, June 28.—N° 1459.

NEWTON, WILLIAM EDWARD.—(*Communicated*).—"A new mode of applying engraved plates, or electrotype or other substitutes for such plates, to the cylinders of printing presses, and of applying other parts of such presses in combination with the cylinders to enable perfect impressions to be taken from the cylindrical surfaces of the plates."

The object of the invention is to print very rapidly from engraved plates, and the first part of it consists in backing the plates with a flexible but inelastic or very slightly elastic metal or metallic alloy, and when thus backed, winding them upon the periphery of the printing cylinder by drawing and bending them between the latter and the periphery of the feeding and impression cylinder, so as to make them bear evenly and solidly upon every part of the first-named cylinder, and securing them firmly thereto, by which means the plates are made practically as much a portion of the printing cylinder as though made of the solid metal of the cylinder. The invention also relates to a mode of applying a roller termed a clearing roller, in combination with the printed cylinder and the inking roller, for the purpose of removing the superfluous ink from the surface of the plates after the inking operation. And the invention further consists in a certain method of applying an endless band to clean and polish the surface of the plates between the engraved lines or sunk portions which produce the impression.

[Printed, 8d. Drawings.]

A.D. 1858, July 12.—N° 1558.

NORTHEN, WILLIAM.—"The application of stoneware or earthenware, coloured or plain, to improved and original designs."

The last part of the invention refers to "the application of designs in colours such as blue, green, scarlet, crimson, violet, lilac, to the exterior of stoneware jars," and consists in "using the metallic oxide of the colour desired with the ordinary fluxes, and afterwards dipping the jars, whether plain, coloured, or ornamented with any design, into a white stoneware glaze, thereby preventing the extreme action of the light from destroying the colour."

[Printed, 8d. Drawings.]

A.D. 1858, July 20.—N° 1637.

DOLEY, CHARLES, BIGLAND, EDWIN, and WORRALL, THOMAS HENRY.—“Improvements in ornamenting metallic and non-metallic surfaces.”

The patterns are drawn upon glass with a composition of bees-wax, tallow, and pitch, and etched in with fluoric acid. The composition is next scraped off and the glass embedded with plaster of Paris on to a slate or stone slab. The etched part is then filled up with a composition of bees-wax, shellac, tar, varnish, and gas-black. An impression is taken upon unsized paper, is damped and placed upon the article intended to have the pattern upon it, and the printed impression rubbed down with an india-rubber roller, and the paper washed off with soap and warm water; the article is then immersed in dilute nitric or other suitable acid, after which it is well washed with strong ley, made of potash, lime, soap, and water, which removes all the composition, and the article will appear with the pattern sunk into the body of the metal; or a thin sheet of metal may be coated over with a composition of wax, tallow, and pitch, and a pattern drawn upon it, and afterwards cut or bitten in with acid. The article intended to have the pattern produced upon it is then coated over with either of the compositions described, and washed over with whiting and water. The sheet of metal is next placed upon the coated side, and brushed with oil through the part cut out, in order to remove the part of the composition not wanted, then washed with soap and water and submitted to the acid, as before described. “We use the glass plates made as described, by etching, for the purpose of embossing leather and other soft materials and metals, so as to produce raised ornaments thereon. The designs etched upon glass, according to our invention, are sometimes of the kind called positive, and sometimes of the kind called negative. The printing of designs from glass plates, according to our invention, is applicable to the ornamenting and embossing of metals, and for printing in vitrifiable or other colours, or with leaf metals or bronzes, upon glass, stone, ivory, bone, wood, china, earthenware, papier maché, and other surfaces, and embossing leather and other non-metallic surfaces for various purposes.”

[Printed, &c. No Drawing.]

A.D. 1858, August 3.—N^o 1758.

CUNNINGHAM, ROBERT.—“Improvements in the production of letterpress printing surfaces, and surfaces used in reproducing ornamental patterns or devices by printing or otherwise, and in the apparatus connected therewith.”

“The improvements, as carried out under some of the most important of their modifications, are especially applicable to apparatus for composing and distributing types used in letterpress printing.”

1. Composing machine. The types are contained in a series of narrow polished grooves, those in the same groove being all of the same name. These grooves combine to form the composing case. In front of and at right angles to the type grooves runs a channel or race, the top of the channel nearly coinciding with the bottoms of the type grooves, whilst its left-hand end opens upon the composing plate or table corresponding to the ordinary composing stick. The types as selected are depressed into the race and, moved along upright to their proper position on the composing table. Whilst the composing operation is going on, the types are successively selected by depressors formed with finger pieces, each of which when set in action pushes down the lowest or front type of a file into the race. The depressed type is moved along the race to the composing plate by means of a species of piston or picker driven by a treadle; the normal position of the picker is at the right-hand end of the race, and when there is a type in the race it is moved to the left-hand end and back again, taking the type to the composing plate and leaving it there. At the commencement of a page or column the types are pushed by the picker between head and foot-line guides on the composing plate, and up against a frictional or other brake or stop, which is close to the mouth of the race at the commencement of a line, but which gradually recedes therefrom as the types accumulate in the formation of a line. On the completion of the line a contrivance is actuated to remove the head-line guide and to shift forward the foot-line guide, the latter carrying the line of types with it. The foot-line guide then recedes to its former position, and the head-line guide is reintroduced, the brake or stop at the same time moving up to the mouth of the race, where another line of types is composed as before. A contrivance may

be appended indicating the space at any time required to fill the line.

In the distributing machine the types are placed in a frame on the left-hand side of a table, the bottom of the column of types being towards its front edge. In or on a guide extending along the table from right to left, and at the top end of the column of types, is a slide or carriage with a groove to hold a row of the types. This slide is moved to and fro along the guide by hand or foot, and being placed opposite the column of types one or more lines of these are transferred to it in a continuous row. The slide carries the types in front of a number of grooves or long cells arranged at right angles to the guide, each groove to contain types of one name only. The types are singly transferred to their respective cells through an opening or gate in the inside of the slide or carriage, being successively brought up to the gate by a spring at the rear of the line of types. The operator ascertains the name of each type as it has to be transferred to its cell from an impression of the types placed in a convenient position before him, and by means of stop keys causes the slide to stop in such a position that the type about to be pushed out of the slide will enter its proper cell. A contrivance is employed which just before the slide is stopped adjusts the size of the gate to the particular kind of type, so that only one can be pushed through at one time. The types are pushed out of the slide into the cells by a piston or picker, acted on by hand or otherwise.

In another arrangement of apparatus a set of dies, one for each type is used, each die as it is wanted being brought to a particular position by means of depressers and contrivances connected therewith, analogous to those above described. When in the proper position, each die is impressed on a plate or cylinder of metal or other suitable material, such plate or cylinder being moved by suitable mechanism between each impression in order that each die may be impressed in its proper situation. The plate or cylinder so impressed or indented may be used either for direct intaglio printing, or casts may be taken from it to be used in relief or surface printing.

The above apparatus or modifications thereof may be used for producing composite surfaces for printing, or otherwise reproducing ornamental patterns or devices.

To assist the operator in composing or distributing types, pins,

or similar elements, the copy, impression, or design is arranged before him at a convenient level upon a roller or frame, and a straight edge is adjusted at a line which is at the time being composed or distributed. A contrivance is added by which as each line is completed a fresh line is brought up to the proper level.

[Printed, 2s. 2d. Drawings.]

A.D. 1858, August 3.—N° 1760.

BELL, GEORGE.—"Improvements in embossing and printing "dies, and in the manufacture of 'lace' or perforated embossed "paper."

The invention consists: 1. In constructing the dies with moveable collars or "tops," retained in the body or frame of the die by a screw or screws, or by other suitable means, and in forming slides or "centres," working in apertures made in the collars, with heels or lateral projections at bottom to prevent their being drawn out or their falling out from the dies while being used, but allow of their being protruded for the purpose of being inked. 2. In the manufacture of "lace" or perforated embossed paper, by first embossing the paper in an embossing die, in order to produce the embossed pattern thereon, then in the employment of a plate of metal, which is placed upon the paper while still in the die, and in producing the perforations or open work in the paper by bringing down the press upon the metal plate, which will cause the cutting away of all those parts of the paper not contained in the sunk parts of the die.

[Printed, 6d. Drawings.]

A.D. 1858, August 7.—N° 1802.

IMRAY, JOHN.—"Improvements in apparatus used in printing."

The invention applies to presses for printing two or more impressions in register on the same sheet. "I make the table "sufficiently long to receive the two or more forms disposed at "suitable intervals along it. I hold the sheet to be printed "between a tympan and a frisket, which slide with the table "under the platten to receive the impression from the first form. "After the first impression has been taken, the tympan and "frisket containing the sheet are retained under the platten by

“ suitable stops, and the table is made to slide onwards till the
 “ second form is brought to its proper place under the platten,
 “ and a second impression is taken; thus successively, a third,
 “ fourth, or any required number of impressions may be taken,
 “ and finally the table is drawn back, bringing with it the
 “ tympan and frisket containing the printed sheet, which can be
 “ removed and replaced by a fresh sheet in the ordinary manner.
 “ In order to secure good register of the successive impressions,
 “ I cause the table to slide between guides fitted to the platten,
 “ and I apply adjusting stops to the table to retain it in its
 “ successive positions as each successive form is brought under
 “ the platten.”

[Printed, &c. Drawings.]

A.D. 1858, August 13.—N^o 1852.

SCHAUB, GEORGE.—(*Provisional protection only.*)—“ New or
 “ improved machinery to be used in the manufacture of certain
 “ kinds of printing types, and also in the manufacture of spaces
 “ and quadrats used in setting up printing types.”

The invention relates to types of the kind described in the specification of the Patent dated 16th April 1857. A circular table having a series of radial slots is mounted upon a vertical axis, so as to be capable of motion in a horizontal plane. In these radial slots are placed beds or matrices impressed with the types to be manufactured. The heads of the types made of copper, and coated at back with soft solder, are cut from the sheets in which they are made by means of a fly press, the lower die used in the press having a spring bottom by which the type head cut out is raised from the die. The separate type heads are placed in the matrices on the table, the backs of the type heads being uppermost. The bodies of the types are cast on the heads by means of a mould, one half of which is fixed over the table in the direction of a radius, and the other half of the said mould is moveable. The table is turned until the matrix filled with type heads is brought under the fixed part of the mould, the moveable half of the mould is connected to the fixed half, and the matrix is made to bear up against the under side of the mould, and is fixed accurately in its place; the matrix constitutes the bottom of the mould. Fused type metal being poured into the mould,

attaches itself to the type heads, and forms bodies thereto, the mould is opened and the types removed. The matrix is depressed so that it can pass freely under the fixed part of the mould and another filled matrix be brought under it; the operations described are then repeated. By substituting a plane surface for the matrices, the machinery described may be employed for the manufacture of spaces and quadrats.

[Printed, 4d. No Drawing.]

A.D. 1858, August 26.—N° 1933.

BLACK, JAMES.—“An improved mode or means of obtaining, “ applying, and transmitting motive power.”

The invention is applicable to “printing and other machinery “ in which rotary motion is required.” A face plate or disc fixed on an axis has formed in it a number of wipers, excentrics, or curved paths, which receive a pulley or roller free to revolve on its own axis, and attached to an adjustable lever in equal balance with the desired lift or pressure. On rotary motion being communicated to the plate, the pulley or roller moves round the excentrics or paths, imparting a rocking motion to the lever, (similar to the action of a beam), wherefrom motion may be transmitted or applied as desired, or converted by suitable appliances into any description of motion. One means of imparting rotary motion from my arrangement is by attaching at the end of the lever a crank and connecting rod of same radius as the lift of the lever, carried over the centre by a fly-wheel.

[Printed, 10d. Drawings.]

A.D. 1858, September 2.—N° 1992.

WALKER, JOSEPH, and BARNES, JAMES.—“Improvements “ in blankets and lappings for machine and block printing, and “ other similar purposes.”

According to this invention, a blanket or lapping having a cotton pile-pressing surface is substituted for “the ordinary plain “ cotton surfaces hitherto used. These improved blankets or “ lappings may be constructed by cementing together by means “ of india-rubber solution, or other waterproof cement, two or “ more thicknesses of cotton fabric, the outer or pressing surface “ of such combined fabric having a pile raised thereon by any of

“ the well-known methods adopted for pile raising. . . . The chief advantage to be derived from the use of pile surface blankets in machine and block printing is increased elasticity in the direction of the thickness of the blanket, whereby a more yielding and even pressure is distributed over the surface of the form.”

[Printed, 4d. No Drawings.]

A.D. 1858, September 6.—N° 2016.

BROOMAN, RICHARD ARCHIBALD. — (*Communicated from abroad.*)—“ Improvements in printing or marking words or figures on papers, parcels, books, pages, tickets, and other articles requiring to be marked, printed, stamped, or addressed.”

The words or figures to be printed on successive articles are arranged in type in columns, so as to run down one column and up the next. The form thus arranged is inked, and has a longitudinal and lateral motion imparted to it by machinery, which causes each column to traverse at intervals so that each name, address, or figure to be marked at one time shall come successively under an aperture in the frisket. The page, parcel, folded newspaper, or other article to be printed or marked is placed in a fly, which nips it, and holds it over the aperture until it is pressed down by a lever so as to receive an impression, after which the lever releases it, and the fly removes it to some receptacle.

[Printed, 10d. Drawings.]

A.D. 1858, September 7.—N° 2025.

LARSONNIER, GUSTAVE, and BLANCHE, AUGUSTE.—“ Improvements in block printing by hand on tissues, paper, or other suitable fabrics.”

The invention consists in a mechanical arrangement for guiding the printer in placing the printing block on the surface of the fabric. The bench or printing table is furnished along its two longitudinal sides with a rail or with sockets, tappets, and regulating screws, “ for allowing a moveable rule to be fixed crosswise on the table, and, when required, to be moved forward at equal distances apart over this latter, this rule serving as a guide for the printing block, which latter is provided on one of its sides with two projecting pin points, one of which may be inserted in

“ an angular notch or serration of a plate fitted to the side of the rule, whereas the other point is caused to rest on a projecting fillet of this plate, which latter being provided with a row of the said notches placed at equal distances apart, thereby allows the printer placing at once his block in the required position on the fabric stretched out over the table, and on which the impression further takes place in the usual manner.”

[Printed, 8d. Drawings.]

A.D. 1858, September 23.—N° 2140.

GRANT, DANIEL.—“ Improvements in colour printing presses.”

The blocks from which the printing is to be taken are placed on a circular bed, each with its own inking apparatus; each inking apparatus is intended to supply ink of a different colour. Motion is communicated to each inking apparatus to cause that part which supplies the colour to the block to travel over the block and back by a cam or excentric, worked by a pinion, and set in motion by a toothed wheel or rack, extending round the press. The tympan is circular, with flaps in two compartments, and upon rotary motion being communicated thereto, it carries the paper successively over each block. The platten descends once for every successive onward motion of the tympan.

[Printed, 10d. Drawings.]

A.D. 1858, September 27.—N° 2161.

LAUDER, WILLIAM.—“ Improvements in engraving and printing for the purpose of ornamenting china and earthenware.”

The invention consists in engraving and printing on such ware, in various colours, from portions of plates taken by galvanic agency from a general plate containing the whole subject, and in a mode of ensuring a correct register or adjustment of those plates in the process of printing. “ In the first instance I engrave my subject in the usual manner on the surface of a copper-plate. From this original plate I produce as many metal copies by galvanic agency as there are colours to be printed. 2. I erase a part of the work previously engraved on the several plates, so that the portion of the engraving present on each plate shall be absent from the surface of all the rest. 3. When the plates are required to be printed, each will be restricted to one particular colour, and when the successive impressions are made by the

“several plates on one paper, the subject will be then completed for transferring to the ware. 4. To ensure true register in the combination of the parts of the subject on the several plates, I construct a metal frame for securing the plates and paper from the possibility of shifting from their proper positions during the operation of printing by the rolling press.”

[Printed, 6d. Drawings.]

A.D. 1858, October 1.—N° 2191.

BRADBURY, HENRY.—(*Provisional protection only.*)—Improvements in producing printing surfaces from engraved plates.”

A composition of gutta percha and grease is spread over an engraved plate, in order to get a cast, and from such cast an electrotype plate is obtained. Heat is applied to the under or back surface of the engraved plate, so that by melting the composition the whole of the engraved parts may be filled. The coating of composition thus applied is, when dry or set, to be removed, and from it an electrotype plate is to be produced, as is well understood; but instead of resorting to the ordinary means of preparing the surface of the cast taken from the engraved plate, it is preferred to wash the surface of the composition cast over with a solution of the nitrate of silver, and then to subject the same to the vapours or fumes produced from phosphorous and caustic potash.

[Printed, 4d. No Drawings.]

A.D. 1858, October 2.—N° 2197.

COLLINS, GEORGE HENRY.—“Improvements in the production of blocks or surfaces to be used in printing.”

“The drawing, device, or matter is obtained on a block or surface to be used in printing from a drawing, device, or matter on a lithographic stone or other surface, whether the same has been produced thereon by hand, transferred, or otherwise, by subjecting the drawing, device, or matter on the lithographic stone or other surface to a series of processes similar to that in which a lithographic stone is inked when about to be printed from in the ordinary manner, but the ink or composition used is to be mixed with suitable driers, so that each succeeding coating of

“ the composition may quickly dry or set before the next coating is applied. By these means the lines and parts constituting the drawing, device, or matter on the stone or other surface, which would be inked and printed from if used in the ordinary manner, become more and more built up or raised, and when such raising has been sufficiently accomplished, a cast in wax or other suitable material is taken, from which an electrotpe is obtained, as is well understood.”

[Printed, *4d.* No Drawing.]

A.D. 1858, October 4.—N° 2201.

DOLBY, RICHARD, and GATES, JOHN.—(*Provisional protection only.*)—“ An improved process of transfer, printing, and ornamenting on glass and other transparent substances.”

“ We take a composition of boiled linseed oil and lamp-black or other colouring ingredient, and transfer it to the glass or other transparent substance, after which we coat it over with an enamel, cement, or other hardening material. By this process the figures or characters are better developed and they are produced much cheaper.”

[Printed, *4d.* No Drawing.]

A.D. 1858, October 12.—N° 2273.

SMITH, WILLIAM.—“ Improvements in transferring drawings or delineations in lithographic and zincographic processes.”

A sheet of tracing or translucent paper, cloth, or other fabric is prepared, “ with the transfer medium or materials ordinarily used in the preparation of transfer paper by lithographers and zincographers.” This prepared sheet of composite tracing and transfer paper “ then answers as the medium for obtaining the first and only tracing used in the operation from the original drawing or delineation which is to be printed; the prepared sheet being fastened down upon the original drawing with its prepared face upwards, the drawing is then traced through and on the prepared sheet with transfer ink, and it is then removed and applied to the stone or plate, the traced delineation being pressed down upon the face of the stone or plate. The removal of the sheet from the stone is effected by treating the back of it with hot water and then taking up the sheet

“ at one end, and slowly pulling it off backwards. This process leaves the drawing upon the stone or plate ready for being inked up and prepared for printing in the ordinary manner.”

[Printed, 4d. No Drawing.]

A.D. 1858, October 14.—N° 2295.

BAXTER, GEORGE.—“ Improvements in colouring photographic pictures.”

The invention consists “ in combining with photographic pictures the processes of intaglio, plate, and surface printing, and also the processes of lithographic and zincographic printing as a means of colouring such photographic pictures. For these purposes as many printing plates, blocks, or surfaces are prepared as there are intended to be colours, or shades of colours printed on a photographic picture, each printing block, plate, or surface being prepared in a suitable manner to print a portion of the picture with its particular colour or shade of colour, so that when impressions have been taken from all the printing blocks, plates, or surfaces on to a photographic picture, the same will be coloured all over to the extent desired. The colours employed may be such as are now ordinarily used in the abovementioned processes of printing.”

[Printed, 4d. No Drawing.]

A.D. 1858, October 21.—N° 2351.

NAPIER, JAMES MURDOCH.—“ Improvements in printing presses and printing machines.”

In the common hand-press used for letterpress or raised surface printing, the frame including the feet upon which it stands are cast in one piece. The type table is not so deep nor is it ribbed up so strongly as those usually employed, but it is provided with a number of bearing strips in addition to the usual guide bars. These bearing strips are correctly planed so as to rest upon opposing bearing strips upon the bed below, which are all planed true, and so arranged as to support the table against the pressure more generally over its surface, the bed thus taking its usual strain while the table being well supported by the bearing strips on the bed, may be made much lighter, and will at the same time present a more rigid surface. The platten is made in one casting with the guides which rise up from it “ for steadymment ”

against the top of the press frame, instead of the plain at present adopted of bolting these guides to the platten. The power for giving the impression is applied by a lever. Part of the frame supports the fulcrum of this lever, and by means of a connecting rod stretching from the lever to the junction of a pair of knuckle joints, motion is given to them, and by their action the platten is depressed, a spring raising the platten on their return action. The lower end of the bottom limb of the knuckle joint is made to rest, and take its bearing on the platten or on a proper bearing provided upon it. At the junction of the two limbs of the joint—that is at the middle articulation—is a “middle piece” between the two limbs, formed with a hollow to receive the lower end of the upper limb, which is convex, and also provided with a convex portion to fit in the upper end of the lower limb, which is concave; this “middle piece” so arranged admits of very complete lubrication of the parts, and is attached by a jointed connection to the connecting rod, which in turn is similarly attached to the hand lever, upon which the power is applied; the upper end of the top limb of the knuckle joint is concave, and a convex piece is provided for it to act on, this piece is bedded on its upper side, which is flat, against a wedge or inclined plane, used to regulate the amount of impression by means of an adjusting screw. The wedge takes its abutment against the under side of the press frame-head. When the wedge is moved by means of the screw, the piece below it, which furnishes a convex surface for the upper end of the top limb of the knuckle joint to work in, is kept from moving sideways, its ends being guided by the guide bars previously referred to which rise from the platten. “I also apply the ‘middle piece,’ used at the articulation of the knuckle joints, as described above, to platten printing machines in which knuckle joints are used, and as the sheet of paper, when laid upon the frisket in these machines, is often displaced and made to bulge through the openings of the frisket by the current of air caused by closing the tympan upon it, I cause the frisket to come to rest for the exchange of the sheet over a surface which will support the sheet when subjected to the pressure of the air referred to; this surface will remain stationary, the frisket coming to rest immediately above it.”

[Printed, 10d. Drawings.]

A.D. 1858, October 23.—N° 2373.

NEWTON, WILLIAM EDWARD.—“Improvements in telegraphic apparatus.”

The essential features of novelty in this invention are: 1st. The use in a relay of an accessory circuit to counteract the effect upon such relay of the reversal of the current of the main battery situated at the same station with this relay, in order that this relay and the reversing apparatus connected with it may be maintained in a proper condition to indicate the reversal of the current from the main battery situated at the other extremity of the line. 2nd. The employment of an accessory magnet and an accessory battery to each instrument in combination with the main batteries and main magnets, and with a means of reversing the direction of the current of each of the main batteries. 3rd. The use of a reversing key, so constructed and adjusted with reference to its springs as in its operations to reverse the direction of the current of its main battery simultaneously with the closing or opening of the accessory circuit. 4th. The employment of wires to connect the several segments of a circuit wheel with their respective keys in the key-board, “whereby I am enabled to transfer to the vicinity of the key-board the place for making and breaking the proper circuit for printing any desired letter.” 5th. Arresting the motion of the letter wheel of a printing telegraphic instrument at a given point by mechanism that is thrown out of action by the operations of signalling as set forth, and is automatically brought to bear upon the letter wheel again whenever the signalling is momentarily interrupted, for the purpose of causing the type wheels at each end to correspond in their indications. 6th. The several instruments situated at one end of a line of telegraph, when used together, have a certain definite relation to the line, and by means of it a mutual relation to, and correspondence with, similar instruments situated at the other end of the line, and thus constitute a means, instrument, or device for simultaneously transmitting signals both ways, and recording them.

A distinctive feature of the invention in connection with a line of telegraph is the use at each end of such line of the following instruments, a transmitting instrument having a key-board, a

reversing key, which in its action shall reverse the direction of the current of the main battery at its end of the line, and simultaneously close or open the accessory circuit, a relay having a main and accessory circuit, and lastly a receiving printing instrument.

[Printed, 2s. Drawings.]

A.D. 1858, October 26.—N° 2384.

MASON, MARK.—(*Provisional protection only.*)—"Improve-
ments in self-acting feeding machines or apparatus for all
descriptions of steam or other letterpress printing machines or
presses."

The movements of this machine or apparatus are derived from the printing machine itself, but it may also, if necessary, be worked by hand. The sheets of paper may be eight or nine inches thick, the table being recessed for their reception; at the centre of the table underneath the paper is a fine threaded screw, which is used to push up the paper slowly as it is required for the printing machine, the screw being worked by a tappet or other motion connected to the actuating rod which runs along the side of the table. There are also four upright pillars placed underneath the paper, one at each corner. Above the table is a T cross bar, which slides horizontally in a slotted guide frame, which is supported by an upright frame at one end of the table; three arms are hinged to this cross bar at the end next the printing machine and projecting towards it, their lower ends resting on the sheets, these ends being supplied with fine points which take hold of the paper, so that when the cross bar advances, the sheet is pushed forwards to the printing machine. When the cross bar is brought back it raises two bent levers which have their centres of suspension in the upright frame, and are provided with composition knobs or other adhesive substance at the bottom, which adhere to the paper, and detach it from the rest of the sheets ready to be pushed forward by the points on the projecting arms. Between these bent levers, which are provided with a spiral spring on their under surfaces to bring them down, is fixed a holding-down lever of the same shape as the other two levers, and operated upon by a catch joined to the T cross bar in such a manner that it is raised before the ascent of the two adhesive levers and it also falls before they do,

and holds the paper down. Underneath the T cross bar, at the end opposite to the printing machine, a rack is placed attached to a sector or other suitable contrivance, which is operated upon by the actuating rod, the T cross bar receiving a reciprocating motion to and from the machine, carrying forwards the sheets in its advance, and lifting the levers with another sheet when it recedes, ready to be carried forward in a similar manner.

[Printed, 4d. No Drawings.]

A.D. 1858, October 27.—N° 2396.

MASON, MARK.—(*Provisional protection only.*)—"Improve-
ments in letter press printing machines."

The paper is rolled in a continuous web round a cylinder, and passes into the machine, where it is printed on its upper side, the printing cylinder having its type arranged on its surface, and being placed above the paper; it is then carried forward a short distance to another cylinder, and printed on the reverse side, the printing cylinder being placed below it. On emerging from the machine it is passed on to a sloping form, and when the proper length has been carried through, the paper is severed by a pair of shears operated by a lever, which is struck by a catch on the periphery of the lower printing cylinder. The machine is self-feeding, the paper being fed in one continuous length. The two printing cylinders are connected together by bevil gearing, all the other cylinders and rollers also being connected together they operate simultaneously. It is also supplied with tapes in the usual manner for the purpose of carrying forward the paper in its proper course through the printing machine.

[Printed, 6d. Drawings.]

A.D. 1858, November 9.—N° 2515.

BROOMAN, RICHARD ARCHIBALD.—(*Communicated.*)—"Im-
provements in electric telegraphing."

The objects of the invention are twofold. 1. The so arranging the battery force that electric currents can be transmitted to any distance without limitation, by the action of counter currents when the circuit is broken; and 2, causing the transmitting currents to record a facsimile of the written or printed message. To accomplish this, the message or letter to be telegraphed is written with

an ink having sufficient body to admit of being transferred to metal. The message thus prepared is transferred to a metal roll or cylinder and then returned to its writer. The roll is made to revolve by the descent of a weight acting through a train of wheels. Electrically insulated from, but attached to, the frame of the roll, is a lever, one end of which bears a small roll which rests upon the larger one, and the opposite end is connected with the circuit. The condition of this arrangement is such that when the small roll is in contact with the clear surface of the large one, the electric circuit is complete, but the moment the inked part of the roll passes under the point of contact, the circuit is broken. The fulcrum on which the lever works has a determinate lateral motion, which moves the lever from one end of the transfer roll to the other, under such conditions of time, as compared with the revolutions of the roll, as to secure perfect contact with its entire surface. The apparatus thus described is denominated the transfer instrument. The receiving instrument or recording instrument, is composed of a roll of the same diameter and length of that in the transfer instrument, with the same lever arrangement, except that the roll end of the lever is provided with a stylus on the roll end, and a soft iron armature at the other. Beneath the armature is placed an electro-magnet, with its coils in the electric circuit. Now, it will be evident that when the lever roll is in contact with the clear surface of the transfer roll at one point, the current will be passing the electro-magnet coils at the other point, and a descent of the armature follows, which will cause the stylus to bear upon the roll, and if transfer paper be on its surface a black mark will result, and as often as it alternates in its contact with clear and ink surface, so the transfer stylus will note and duplicate its motion.

[Printed, 4d. No Drawings.]

A.D. 1858, December 3.—N° 2767.

COATES, CHARLES. — "Improvements in maundrills for printing."

The body of the maundrill is conical at each end, and so made that it goes easily into the copper printing roller; over each of these conical ends a hoop of iron or steel is placed, the external diameter of which is turned to about the internal diameter of

the copper roller, and its interior is made to fit the conical part of the maundrill. The iron or steel hoop is also cut longitudinally in one or more places. When the maundrill is put into a copper roller, the hoop is forced up the conical part of the maundrill by means of nuts screwing on to the ends of the maundrill, which expands the hoop, and causes it to press against the inside of the roller which is thus held securely. If the hoops are cut in more than one place so as to form two or more wedges, a pin is passed through each end of the maundrill, and the ends of the pins work in recesses in the wedges; the wedges are also retained by a flexible hoop or spring which passes round them, and presses them against the maundrill. By these means the wedges are prevented from turning round, and also from falling off the maundrill.

[Printed, 10d. Drawings.]

A.D. 1858, December 6.—N° 2790.

MUIR, JAMES, and MUIR, FRANCIS.—(*Provisional protection only*).—"Improvements in ornamental or colour printing."

This relates to a system of multi-colour printing, whereby very superior effects are obtainable with a comparatively few number of printing impressions. Supposing there are five colours in the design, the first two are printed by corresponding blocks in the usual way. The other three are put on from a single sieve or colour box, that is to say, from a sieve on which the three several colours to be printed are laid in stripes at predetermined positions. In this way, as the block is laid upon the sieve, it takes up the three colours on the predetermined portions of the figure, and when applied to the cloth or surface to be printed, it deposits its three several colours so as to form actual integral or detail portions of the pattern, encircling the pattern with a "rainbowing" effect. The different colours may be conveniently applied to the sieve or colour box by means of a cellular feeder, or rectangular chamber formed into a series of colour cells open at the top. The bottom of this cellular feeder is fitted with two parallel loose-running rollers, to which the several colours find access through suitable conducting holes, so as to render the rollers instrumental in delivering the colours to the sieve or colour box. For "rainbowing," the rollers are themselves covered with sieve cloth, so

that they are thus enabled to distribute the colours upon the sieve surface with a due "rainbowing" or blending effect. When not used for "rainbowing," the rollers are grooved or cut into annularly at each part which receives colour, and thus the colours are distributed evenly and sharply. "This system of multi-colour printing may be carried out without the use of single-colour printing at all, the different colours being laid on by means of one or more multi-colour blocks or surfaces."

[Printed, *ad.* No Drawings.]

A.D. 1858, December 15.—N° 2878.

MOSS, THOMAS.—"Improvements in printing bank notes, bills of exchange, and other documents requiring like security against being copied."

The paper on which the document is to be printed, is first coated with colouring matter, either all over or only at such parts as it may be desired to protect from being copied, "by the process of photography, or by other art or process by which such documents have been heretofore copied." The colours used for this purpose it is preferred should be yellow, red, brown, or green, though others may be used, and the colouring matters are so prepared that whichever be used the colour may not be removed by chemical agency, unless at the same time the paper be so destroyed or injured as to prevent its being afterwards negotiated or copied. For this purpose burnt clay or carbon (preferring that obtained by the burning of spirits) is used in compounding the colours, and they are mixed with drying oils or varnishes in the usual manner; but when yellow colouring matter is used, it is preferred to employ coal tar or creosote. The colour or colours are by preference applied with a block, though other means may be resorted to, such block applying the colour all over the surface, or only to such parts thereof as it is desired to protect from being copied, the colour in either case being laid on as a ground. The printed portions consisting of letters and figures, whether with or without ornamental devices or vignettes, it is preferred should be printed with the ordinary black ink now used for such documents. "A bank note, bill of exchange, or other printed document so prepared, will, in the event of any attempt being made to copy it by photography, or by other known means, produce a black, or dark, or imperfect impression, either all over or over the parts

“ to which the ground colour has been applied, without showing
 “ the writing, figures, or other devices, or those parts of the
 “ document will be only slightly indicated, and in the event of
 “ the original document being first subjected to chemical agency
 “ in order to remove the colour first applied all over or over parts
 “ of the surface, the paper will be destroyed or so injured before
 “ the ground colour is removed, as to prevent the documents being
 “ negotiated or available for copying.”

[Printed, 4d. No Drawings.]

1859.

A.D. 1859, January 1.—N^o 11.

SMITH, ROBERT.—(*Provisional protection only.*)—“ Improve-
 “ ments in casting, applicable to printing surfaces, and for other
 “ purposes.”

The object of this invention is partly to facilitate the withdrawal
 of the casting from the mould, and partly to facilitate the removal
 of superfluous metal. It is advantageously applicable in the pro-
 duction of ornamental printing surfaces by casting a metallic alloy
 in metal or other moulds, or in moulds formed by burning the
 device or pattern into a wood block, and in practising it for such
 purpose. “ According to one modification, a couple of metal
 “ plates are placed over the surface of the wood mould or block,
 “ but at such a distance from that surface as will give the required
 “ thickness of backing to the cast plate. The plate nearer the
 “ wood block is very thin, whilst the outer one is thicker. Coin-
 “ cident holes are made in both plates, and these holes are tapered
 “ so as to be wider at the outside of the outer plate. The per-
 “ forated plates are covered by an outer plate or cover when a
 “ casting is being taken, and the metal is poured in at one end or
 “ side, and passing through the holes in the plates enters the
 “ interstices of the wood mould. The casting is in consequence
 “ firmly attached to the plates, and by means of them it can be
 “ easily withdrawn from the wood mould, whilst after being so
 “ withdrawn the thin inner plate can be shifted by a screw or
 “ otherwise in such a way as to cut off the superfluous metal, and

“ thus leave the back of the casting in a state requiring little or
 “ no dressing, or instead of the inner perforated plate, the appa-
 “ ratus may be provided with straight-edged or other cutting
 “ plate to answer the same purpose.”

[Printed, &c. No Drawings.]

A.D. 1859, January 5.—N° 38.

DRAPER, WILLIAM.—“ Improvements in machinery for print-
 “ ing on paper and other fabrics.”

“ Heretofore it has been proposed to connect together
 “ two frames carrying printing blocks, and to move them to-and-
 “ fro across the paper or other fabric to be printed, so that they
 “ may alternately be brought over and be pressed down on the
 “ paper or other fabric. Each set of blocks as it left the paper or
 “ other fabric, was passed over a colouring roller to be supplied
 “ with colour ready for the next impression, a colouring roller being
 “ placed for this purpose on each side of the paper or other fabric.
 “ One part of the present invention consists in combining two such
 “ apparatus, so that two lengths of paper, &c. may be printed at
 “ the same time. For this purpose four block plates, each carry-
 “ ing one or more printing blocks, are made to slide up and down
 “ between guides in four frames connected by means of set screws
 “ to a bar at right angles to the two pieces of paper, &c., to be
 “ printed, and in the centre of this bar, or its upper and under
 “ sides, toothed racks and toothed segments are caused by means
 “ of toothed wheels or their axes taking into gear with a toothed
 “ wheel on the driving axis alternately to come into gear with the
 “ rack on the top and with the rack on the bottom of the bar, so
 “ that the bar is caused to move to and fro, and when the bar has
 “ been moved to the furthest point each way, one set of blocks is
 “ over each piece of paper or other fabric to be printed. The
 “ block plates carrying the printing blocks are each supported in
 “ their frames by means of springs, so that the blocks do not
 “ touch the surface of the paper, &c. until they are pressed down
 “ upon it. This is effected by the block plates when over the
 “ pieces of paper, &c. being under the end of an arm which is
 “ depressed by its being connected to the end of one arm of a
 “ lever, a pin on the other arm of each of the levers passing
 “ through a slot in a rod to which a to-and-fro motion is commu-
 “ cated.”

“ nicated by means of a crank on the driving axis, by which
 “ means both levers are worked by the same crank.”

The next part of the invention consists of “ an improved apparatus for moving the paper, &c., forwards after each impression. It consists of a slide with clips to clip the sides of the paper, &c.; this slide is moved to and from stops which are capable of adjustment; the slide is first moved up to the first set of stops, and the clips caused to clip the sides of the paper, &c., the slide is then moved back to the other stops so as to draw forward the paper, &c., the clips are then released, and the slide moved back to the first set of stops. In this manner the paper, &c., is moved a distance after each impression from the printing blocks.”

Another part of the invention consists in an improved method of applying colour to colouring rollers, and consists in employing for this purpose sections of cylinders moveable on a spindle, “ so that they can be arranged to supply colour to the colouring roller at the required places where any particular colour is wanted, each of these sections of cylinders turning in a separate colour pan, by which means I am enabled to work with two or more colours from one block.”

[Printed, 1s. 4d. Drawings.]

A.D. 1859, January 17.—N^o 135.

MORGAN, WILLIAM.—(*Provisional protection only.*)—“ Improvements in printing and stencilling, and in the apparatus or machinery used therein, also for certain applications of such printing and stencilling.”

“ On the surface of cylinders are fastened types or letters, and figures and designs, such types or raised figures and letters being made of metal, wood, gum, felt, leather, cork, asphalte, or composition of glue, with other substances or combinations of any of these or other materials. The cylinders are made to revolve, their raised surfaces being previously inked by rollers in the ordinary way, are rolled on the surface to be printed on, by which the ink will be left on such surface. The types, letters, or figures are sometimes placed on bands of leather, gutta percha, &c., which pass under the cylinder first mentioned, and round, over, and under other cylinders, the object being to extend the surface beyond that of the circum-

“ference of the wheels or cylinders, in order to print at great distances, that is to say, that great spaces should sometimes be between each impression. . . . Instead of type or raised letters, inscriptions or designs may be placed or engraved on the cylinder or bands before mentioned; the object may also be effected by having fixed or moveable stencil plates, with revolving inking rollers or brushes, and such rollers or brushes may be made to act in printing or inking the spaces of the stencil plates by machinery to be moved by hand; such stencil plates may be in the form of bands, one or more being used at the same time, the ink being supplied as before mentioned, or in any other convenient mode. By the last arrangement I form endless stencilling plates. My chief application of the foregoing modes of printing and stencilling will be to common roads, streets, pavements, walls, palings, and the exterior of houses for the purpose of advertising or ornamenting.”

[Printed, 42. No Drawings.]

A.D. 1859, January 17.—N^o 143.

SALTER, ROGER GEORGE.—“Improvements in apparatuses for collecting or picking up letters, papers, and other articles requiring to be stamped or printed.”

By this invention letters, &c., are taken from an inclined feeding tray, one at a time, impressed with any required stamp, and delivered thus stamped from the machine. “I place the letters edgewise upon an inclined feeding tray or trough, and between or upon endless belts, which conduct them against the side of a revolving cylinder, containing on the inside one or several apparatuses for exhausting air and perforations or apertures at intervals in the side. The face of the cylinder carries stamps or dies, which are inked upon the revolution of the cylinder by contact with an inking roller; or any other suitable arrangement of inking apparatus may be employed. Over another part of the cylinder is a pressure roller. The operation is as follows:—As soon as an aperture or series of holes comes opposite the feeding trough, one letter is drawn by the exhaustion of the air inside the cylinder, and held against the side of the cylinder and over the stamp or die, which has been inked, the cylinder continues to revolve with the letter adhering thereto,

“ and carries it under the pressure roller between the cylinder and
 “ roller, whereby the required impression is made on the letter;
 “ after passing from under the roller, the suction made to bear on
 “ that particular letter ceases, and it falls duly stamped. Several
 “ letters are in course of being taken up stamped and delivered,
 “ and each separately by the same apparatus and at the same
 “ time. Or the apparatus may be arranged to operate only upon
 “ one letter at a time.”

[Printed, 8d. Drawings.]

A.D. 1859, January 18.—N° 146.

LUIS, Jozé.—(*Communicated by J. P. Faure, of Paris.*)—(*Provisional protection only.*)—“ A new machine for putting on, equal-
 “ izing, and drying the colours on papers for hangings, bookbind-
 “ ing, boarding, and fancy paper of every description.”

“ The principle on which this invention rests is the idea of the
 “ triple rotation of brushes, imitating the work performed by the
 “ workman. The triple rotation of brushes is obtained by means
 “ of a disc having a continued circular movement communi-
 “ cated to it by bevil wheels or pullies placed on a longitu-
 “ dinal shaft, which receives its movement directly from the
 “ driving shaft. The driving shaft can be governed by a crank,
 “ cog-work, or pullies, in order to give the necessary velocity for
 “ drawing on the paper. On the disc pinions are arranged,
 “ governing the brushes, which are also drawn by the circular
 “ movement of the discs, and by their gearing with the toothed
 “ wheel, the pinions are thus obliged to rotate on themselves
 “ during the circular movement of the disc. In order to force
 “ the brushes to work successively on the different points of
 “ their circumference, the rods carrying them and passing by the
 “ centre of the pinions are simply bent at right angles. The axles
 “ of the brushes are screw cut, so that they can be changed and
 “ more or less pressure be given to them on the paper, as required;
 “ a counter screw serves to fix them when arranged. The slope
 “ of the brushes arranged so as to cause them to work succes-
 “ sively on all parts of their circumference is a principal part in
 “ the invention. The number of brushes as well as of discs may
 “ vary according to the size of the paper (which may be in sheets
 “ or rolls) and to the degree of finish or polish to be given to it.”

[Printed, 4d. No Drawings.]

A.D. 1859, January 24.—N^o 214.

SMITH, JOHN, and SMITH, WILLIAM HENRY.—“Certain improvements in manufacturing paper and in producing water-marks, patterns, figures, letters, and devices thereon, and in the construction of the mechanism employed therein.”

The principal feature of this invention, so far as the present series is concerned, consists of a “method of producing letters, figures, and devices to any extent of repetition, and all identical, with a saving of time and accuracy hitherto unattained.” For this purpose an embossing machine is used, consisting of an upright frame fitted with guides at the sides and screws for giving the pressure, and fitted with a small pair of driving pinions. “In place of the two ordinary rollers, we employ two made of the best cast steel, upon one of which we engrave the desired pattern. sunk-cutting the figures, &c., in the form of a wire, and corresponding in depth, thick and thin lines, or otherwise. We next proceed to cut all the ground away, leaving only the edges of the figure or pattern standing, which must be worked up to a sharp edge and its primary surface maintained very true. The rollers should be made of equal size and afterwards hardened, being placed in the machine in suitable bearings by the pressure imparted by the screws upon the plane surface of the under roller (likewise hardened). We cut out by great pressure the patterns, letters, figures, &c., either in thin metal or card, gutta percha, or in fact any suitable elastic material, and we afterwards electroplate them or give them a thin plate of copper in a battery. Another method is by the use of steel punches engraved, and the edges made to a sharp cutting edge, cutting the pattern, device, &c., out on a block of lead or wood, afterwards electrotyping the design.”

[Printed, 8d. Drawings.]

A.D. 1859, January 31.—N^o 273.

BENTLEY, DANIEL.—(*Provisional protection only.*)—“Improvements in self-acting apparatus, applicable to letterpress printing machines for supplying and removing the paper.”

The invention consists “in applying to letterpress printing machines an air cylinder to which suitable jointed or flexible pipes are connected. The air cylinder is furnished with a piston.

“ which in moving forms a partial vacuum in the pipes, and this
 “ partial vacuum is made available for lifting the upper sheet of
 “ paper from the pile by which the printing machine is supplied,
 “ and suitable machinery is employed to bring forward the sheet
 “ of paper so lifted and to deposit it within reach of the flaps or
 “ other agents by which the paper is taken hold of and delivered
 “ to the type. A similar arrangement of pipes is also employed
 “ to remove the paper from the printing machine when printed.

“ In supplying the paper to be printed to the machine, it is
 “ usual to loosen the ends of the sheets, in order that they may be
 “ taken off separately with facility, but as the top sheet might
 “ sometimes adhere to the one below it, I make use of a wire or
 “ other instrument to pass between the sheets after the front end
 “ of the top sheet has been lifted by the partial vacuum in the
 “ pipes as described.”

[Printed, 4d. No Drawings.]

A.D. 1859, February 2.—N^o 301.

TEARNE, SAMUEL.—“ Improvements in ornamenting surfaces.”

These consist of methods of ornamenting surfaces, by first gilding, silvering, or bronzing the same, and afterwards transferring thereto designs printed upon transfer paper, the transferred designs concealing certain parts of the gilded, silvered, or bronzed surface, and remaining permanently attached to the surface to be ornamented, so as to form part of the finished design.

In order to ornament a surface of papier maché, japan, or other opaque substance with gold leaf, the process is as follows:—“ I
 “ attach gold leaf to the said surface by means of a solution of
 “ isinglass or gelatine; I take a design printed on transfer paper,
 “ the said design being printed in two or more colours, all those
 “ parts of the transfer paper are left without colour where gold is
 “ to appear in the finished design. I varnish the said printed
 “ design with copal or other suitable varnish, and lay it down and
 “ rub it upon the gilded surface so as to bring it into close
 “ contact therewith. When the varnish has hardened, the transfer
 “ paper may be removed by wetting and rubbing it, when the
 “ colours printed on the transfer paper will be left firmly secured
 “ upon the gold leaf, the said gold leaf showing in those places
 “ where no colour was transferred. When the transfer is made by

“ printing two or more colours upon one another, the said colours must be printed in an inverse order, so that when reversed by transferring they may appear in the proper order. When the ornament is upon glass, and to be viewed through the glass, I print the colours of the print to be transferred in the usual order, and transfer the design to the glass. I afterwards apply gold leaf to the back of the design, or to those parts only which were left colourless in the transferred design.” . . .

[Printed, &c. No Drawings.]

A.D. 1859, February 4.—N^o 316.

THOMPSON, WARREN.—(*Provisional protection only.*)—“ An improved printing telegraph.”

The invention consists of two parts, viz., the manipulator or instrument by which the operator gives the dispatch and the receptor. The manipulator consists of a finger board containing a certain number of keys or touches which are attached to a corresponding number of straight levers; these are connected with an equal number of small rectangular metallic levers, which are placed in a circle round the arbor of the escapement wheel of a common clock train or movement, and directly under a horizontal wheel containing thirty little pins, which the levers are calculated to push out beyond the circumference of the wheel whenever the keys or touches are acted upon by the operator; the same touch that pushes out the pin, corresponding with the letter on the type wheel of the receptor, pushes in the pin that is against a fixed post, and stops the instrument each time that the last pin pushed out comes against it, and thus prevents any further action until another letter is made. “ This double motion of pushing in the preceding pin, at the same time that you push out another, is obtained by an apparatus placed under each of the straight levers. The escapement and pin wheels are on the same arbor, and are put in motion by a common clock train. The receptor is put in motion by two clock trains, the first actuating the type wheel and bringing forward the letter in front of the tampon to be printed, the second is to print the letter when brought forward. The arbor of the type wheel has an escapement and a ratchet wheel; it is driven by a pinion loose upon the arbor, but attached to it by means of a spiral spring which the clock train

“ keeps wound up, so that when the vibrations commence this
 “ spring acts instantaneously and with a great degree of elasticity.
 “ The type wheel is also loose upon the arbor, and is attached to
 “ it by a coupling wheel which has a sliding motion on the arbor,
 “ and contains thirty teeth, by which the type wheel is attached by
 “ means of a little pin, which is hitched to bring forward the
 “ letter, and unhitched each time a letter is printed; the type
 “ wheel flies back to its starting point by means of a spiral or
 “ watch spring, which is placed and attached underneath, and
 “ pushes aside by its momentum a little arm which prevents the
 “ coupling wheel falling until the type wheel is entirely home. The
 “ ratchet wheel, which has also thirty teeth and serves in starting
 “ to raise a little lever or finger, which when the wheel stops falls
 “ back to its place, and in so doing lets escape an arm which,
 “ when liberated, makes a revolution sufficient to print a letter by
 “ means of a cam wheel containing four cams on the fourth arbor
 “ of a clock train, serving at the same time to move forward the
 “ band of paper by means of a Maltese cross, to receive the next
 “ letter, and also to unhitch the type wheel by elevating a forked
 “ lever which raises the coupling wheel.”

[Printed, 42. No Drawings.]

A. D. 1859, February 7.—N^o 344.

SIMS, THOMAS.—(*Provisional protection only.*)—“ Improvements
 “ in the application of photography to engraving and printing.”

“ I employ a film of collodion either alone or covered with
 “ albumen or gelatine, or similar preservative substance, on a
 “ surface of glass or talc, or other suitable material, and I pro-
 “ duce the photographic picture upon it either in the wet or
 “ dry state in the ordinary manner; I then submit the film to
 “ the action of bichloride of mercury, and ammonia-chloride of
 “ gold, or other chemicals capable of causing the lines of the
 “ picture to swell or rise and become absorbent, as already known.
 “ This operation is however not always necessary. I then
 “ cover the film with a thin coat of varnish, which speedily dries
 “ on the porous raised lines or parts, leaving the other parts
 “ wet or damp. I then dust over the picture a quantity of
 “ powdered resin, or gluten, or gum, or plumbago, or metallic
 “ powders, or starch, or sand, or other suitable powder, which

“ adheres to the wet parts, and does not adhere to the dry parts.
 “ The picture is now in a fit state for printing or transferring
 “ either to paper or to transfer paper, or other suitable flexible
 “ material, or directly to stone, or to copper, or steel, or zinc,
 “ so as to produce a lithograph, or to be etched by acids, or
 “ otherwise converted into a printing surface or plate by the aid
 “ of the known means for that purpose. I also make electro-
 “ types from the films prepared as above-mentioned, after metal-
 “ lizing the surface, or rendering it a conductor of electricity.
 “ In some cases I apply plumbago or other suitable powder to
 “ the film without varnish, and it then adheres chiefly to the
 “ raised lines or parts, and can be transferred or electrotyped.
 “ Or, I thoroughly dry the film on the glass, and coat it or not
 “ with oil of turpentine or other essential oil, and then apply
 “ resin or other suitable powder, and fix it by heat, and I then
 “ etch the glass by hydro-fluoric acid. The glass so etched is
 “ then used for printing, or the pictures may be preserved on
 “ the glass itself.”

[Printed, &c. No Drawings.]

A.D. 1859, February 17.—N^o 444.

SAILLARD, BENOIT.—(*Provisional protection only.*)—“ An im-
 “ proved mode of obtaining printing plates from collodion pic-
 “ tures.”

This invention consists in the use of the electrotype process for this purpose. Upon a film of collodion spread over glass or a plate is placed the negative or positive of the drawing to be reproduced, and the covered plate, exposed to the action of the light. The collodion picture thus obtained is placed in a solution of pyrogallie or gallic acid, to which nitrate of silver dissolved in distilled water has been added. In this bath the plate is allowed to remain until the picture has become sufficiently developed, after which the photographic image is fixed by means of a solution of hyposulphite of soda or cyanide of potassium, as ordinarily practised in photography. The film is next carefully washed and put aside to dry. It is then covered with a saturated solution of bichloride of mercury, and after the solution is drained off the plate is washed with a weak solution of bichromate of potash, and subsequently with distilled water;

when dry the design will appear on the glass plate in relief. The design, drawing, or picture is next submitted to the electro-type process for the purpose of throwing down copper or other metal thereon by electro-deposition, thereby producing a reproduction in metal suitable for yielding impressions in ink of the raised picture or design produced upon the glass.

[Printed, 4d. No Drawings.]

A.D. 1859, February 18.—N° 453.

WALLIS, GEORGE.—(*Provisional protection only*).—"A new or improved method of engraving, applicable to the production of printing surfaces, and the ornamentation of metallic and other surfaces."

A drawing is made, or print taken with ink, or composition containing gum arabic or other adhesive material, and emory powder or sand or other hard powder applied thereto, which causes all the lines of the design to stand out in relief upon the surface of the paper or other substance. The relief drawing is placed between two metal plates, that placed upon the face of the drawing being the plate to be impressed, and the one at the back of the drawing being by preference of steel or other hard metal. The two plates with the enclosed relief drawing are passed between a pair of rolls, whereby the parts in relief indent or impress the plate placed on the face of the drawing or design; or if both plates be of soft metal, both the said plates will be impressed with the design or drawing on the paper. From the plate thus impressed, impressions or prints can be printed in the ordinary manner, or the indented plate may be used for embossing or impressing other plates or surfaces.

[Printed, 4d. No Drawings.]

A.D. 1859, February 19.—N° 458.

DUJARDIN, PIERRE ANTOINE JOSEPH.—"Improvements in the printing apparatus of railway telegraphs."

The invention consists: 1. Of apparatus for conveying and printing despatches. 2. Of apparatus for receiving and printing despatches. The first apparatus is "precisely similar to the conveying apparatus of the French railway dial telegraph, to which I have added a printing organ." When the handle is stopped

above one of the letters of the dial the operator presses upon it for the purpose of causing an additional piece appended to the handle to enter a corresponding notch, and during this downward motion the letter is printed. When the operator ceases to press on the handle it returns to its original horizontal position by the action of a spring, and during this ascending motion the paper ribbon progresses so as to allow the next letter to be printed on it.

The receiving apparatus is worked by a galvanic battery, and one or the other of the conveying apparatus above described; its function is to cause the letter wheel to move round and to stop when the letter to be printed is opposite a fixed point, which result is obtained by means of the vibrations of a finger. The attendant receiving the despatches causes them to be printed in the following manner:—Each time he hears the letter wheel stopping, he presses a lever, when the printing hammer drops down quickly, striking upon the letter wheel, causing it to yield and bringing it in contact with the paper ribbon. A ring of india-rubber or other soft material surrounding the hammer being impregnated with oily ink, which it receives from a roller as it ascends, enters all the hollow portions of the letter it strikes upon, and transmits its impression to the band of paper underneath. As soon as the letter is printed, the hammer re-ascends by the action of a spring placed under a lever, which causes the paper ribbon to advance after the impression of each letter. Two concentric sets of alphabetical letters can be cut through the letter wheel so as to print at once two copies of each dispatch.

[Printed, 10d. Drawings.]

A.D. 1859, February 25.—N° 512.

SIEMENS, CHARLES WILLIAM.—(*Partly communicated by Werner Siemens, of Berlin.*)—"Improvements in electric telegraphs " and apparatus, and in supports for electric telegraphic line " wires."

This invention, so far as it relates to the subject of the present series, consists: 1. In constructing electric telegraphic printing instruments, with the "boot" apparatus or its equivalent combined with the printing point or edge and inked disc or cord. 2. Constructing electric telegraphic printing instruments with the inked disc or cord and a printing point or edge moved by an iron

tongue, which is rendered magnetic by its proximity to a steel or permanent magnet, and is attracted or repelled by an electromagnet to which the aforesaid permanent magnet is placed in proximity or contact; also the combination of such instrument with the "boot" apparatus or its equivalent. 3. Signalling instrument for sending alternating currents of electricity by means of separate types with elevations or depressions or perforations placed in a composing stick, or in a flexible composing stick or band. 4. Constructing electric telegraphic printing apparatus or instruments with an endless cord supplied with ink, in combination with a printing point or edge by which the band of paper or other suitable material is pressed against the aforesaid cord.

[Printed, 2s. 8d. Drawings.]

A.D. 1859, March 12.—N° 639.

MAC NAB, JAMES.—"Improvements in telegraphing or signalling apparatus."

The invention relates to the working of telegraphic apparatus of various kinds, and thereby transmitting signals by means of a line or lines of atmospheric or hydrostatic tubes, such line of tubing or pipes being the actual means of communication between the distant points to and from which telegraphic signals are to be sent and received. The end of the line of tubes, or the portion where signals are to be sent, is fitted with a cylinder and piston, or a flexible chamber, or other apparatus, by the agency of which the requisite forcing pressure can be communicated to the fluid contents of the line of pipes, whilst at the receiving stations on the line there is a recording, and if necessary, a printing apparatus, through which the action of the fluid movement or pressure is communicated and delivered in the form of signals. Thus, when the actuating piston at one end or point is pressed upon, the force is communicated through the fluid to a receiving cylinder at the required station. This cylinder is also fitted with a piston, the piston rod of which operates upon one end of a double lever working upon a fixed centre in the framing of the receiving instrument. The other end of this lever carries a lever pricker or marker, made to work over the line of traverse of a band of paper during its unwinding from one drum or pulley and its winding upon another. The same lever also actuates a ratchet or other movements

for causing the step-by-step revolution of the pulley carrying the blank band of paper. "In this way, as the necessary motions are communicated through the pipes, the predetermined pricks or marks are made upon the paper band at the necessary intervals, the spaces between each positive mark being determined by the greater or less continuance of pressure upon the operating mechanism of the line of pipes. Instead of mere hieroglyphical marks any ordinary printing apparatus may be fitted up to be operated upon in the same way. Of course each receiving instrument is also fitted up with a cylinder and piston or other operating arrangement for working the fluid in the connecting line of pipes for the transmission of signals therefore in either direction. Such a general arrangement as this is obviously generally available for use with all or nearly all kinds of signalling apparatus. It may be adapted for signalling by perforations in the paper band or receiving surface, or for giving motion to needles, hammers, or bell-works, or a pen, pencil, or other marker, or by operating upon chemically prepared paper so as to produce signal marks." A bell or other indicating apparatus is made to indicate the particular station to be signalled. The system is very suitable for signalling in hotels or railway trains, in large offices and commercial establishments, between the different fire and other stations in towns, and on ship board.

[Printed, 8d. Drawings.]

A.D. 1859, March 16.—N° 668.

CLARK, JAMES.—"Improvements in the manufacture of fabrics in which compounds containing india-rubber are used."

The second part of this invention consists in producing an endless printer's blanket or fabric coated with india-rubber compound. "I take a piece of fabric and place it in a spreading machine, where it receives a coating of india-rubber composition; when the fabric has been coated the required length, the end of the fabric is united to the body of the fabric, and the machine being kept in motion, and the india-rubber composition still being spread on the coated fabric, now formed into an endless web, is separated from the piece of fabric, and forms an endless web, uniform and regular in thickness, and of great strength. Where

“ more than two piles or layers are required to form the thickness of the endless web, the operation is continued in the spreading machine as long as may be necessary. The india-rubber composition used may be combined with sulphur, and the vulcanizing process being applied to the endless web or blanket, it will be rendered permanently elastic and pliable.”

[Printed, 8d. Drawings.]

A.D. 1859, March 21.—N° 710.

WHITTAKER, ROBERT.—(*Provisional protection only.*)—“ Improvements in the manufacture or construction of metallic rollers or cylinders and mandrills for printing.”

The invention relates for the most part to such rollers or cylinders as are used for printing textile fabrics, and consists in so arranging the rollers as to make them capable of steadily withstanding the severe lateral strain of the printing action, whilst a small quantity of copper is used in them, and they are extremely manageable and easily changed and adjusted when in use. The mandrill or central action on which the actual printing cylinder is carried is of wrought iron, in two lengths, capable of connection by a screwed junction. The external end of each piece is formed with a conical shoulder piece, the larger end of each cone being disposed outwards. The central portion of the mandrill has fitted upon it a short cast iron cylinder turned inside and out, and grooved externally to receive a fixed feather in the interior of the actual copper printing cylinder which is fitted on over it. At the driving end of the mandrill a key or feather is employed to connect the mandrill with the interposed wrought iron cylinder, and the latter is similarly connected by a feather with the copper printing cylinder. In this way the actual printing cylinder, which may be made of very thin copper, is supported upon three interposed cylinders or tubular pieces of metal, and the setting up of the whole into a solid working cylinder is effected by the screwing together of the two sections of the mandrill, the cones upon which corresponding to internal cones in the outer ends of the two interposed end cylinders, produce the necessary jamming or supporting set up for work.

[Printed, 4d. No Drawing.]

A.D. 1859, March 30.—N° 795.

SHIPMAN, THOMAS DOWNS.—(*Partly communicated by Mr. Kendall, of Canada.*)—"Improvements in apparatus for stamping " and printing."

The stamp or printing surface is fixed in a frame or box, affixed to and sliding with an upright bar or rod which moves in guides. The rod or bar is attached to one end of a lever, and the other end of the lever is constantly drawn downwards by a spring, so as to raise the printing surface when allowed to do so. An inking roller is carried by the forked end of a lever which has its axis or fulcrum above the before-mentioned lever. The back end of the forked lever is constantly drawn on by a spring, so as to cause the inking roller to pass under the printing surface, by which the movement of the forked lever is caused to depend on the movement of the other lever; by this means at one moment an impression is given, and the printing surface is inked for the next impression. The ink is contained in a box or chamber fixed to the standard of the press, and has a curved under surface, perforated to allow the ink to pass through, and at each action the inking roller passes under the inking box so as to obtain a supply of ink. The printing surface rests on an elastic bed.

"The box or frame is moved up and down by the pressure of " the hand on the upper part of the bar or rod, or it may have a " handle or other instrument applied in place of the hand acting " directly on the head or upper part of the bar or rod, to the " lower part of which the printing or stamping device is affixed."

[Printed, 8d. Drawings.]

A.D. 1859, April 9.—N° 889.

YOUNG, JAMES HADDEN.—"Improvements in setting up " (composing) and distributing types."

1. Composing machine. "Under that part of the composing " machine at which the types issue to be collected into a line is " placed a propeller, which propel the types as they stand in the " receiver, and over this propeller the types are caused to tilt so " that the head of the type issuing from the composing machine, " and about to fall into the receiver, is raised so as to prevent the " tail of the type immediately following from passing over it. " Instead of the receiving line being connected to the justifying

“ box, where the continuous line of types issuing from the machine was divided into lines and ‘justified,’ the justifying box is separated from the composing machine, and capacious receivers attached, in which the type may be carried to one or more justifying boxes to be justified by one or more justifiers. The form of the receiver is in the shape of an oblong grooved plate or galley. A sliding piece to support the types moves in the groove, and when the groove is filled the player forces or pulls out the sliding piece, causes the apparatus to move so as to bring an empty groove before the beater, and draws up the sliding piece so that it may be ready to receive the types issuing from the inclined plane. A moveable bar is placed at the end of the galley, the furthest removed from the beater to prevent the types falling out of the receivers; another bar at the other end may also be used, in order still further to enclose the types and prevent their falling out, especially when the galley is removed from the composing machine.

“ For the purpose of more readily emptying the justifying box, it is made, according to my present invention, to pivot by lugs and pins, on one or either side; in this way the lower end of the justifying box may be raised, and at the same time, by means of a hinge, it may be set at an angle, so as to enable the types to be slid off into an empty galley as usually made use of in printing offices. In the construction of the composing machine it is found necessary to place some types at some distance from the other letters most commonly required, and in order to bring the keys of these types more conveniently under the hands of the player, I attach to them a prolonging piece. In order to facilitate the playing, I place at different parts of the key-board stops or indicators, by touching which the player can ascertain the position of his fingers without looking at them.”

The improvements in distributing types are as follows:—
 “ When a reservoir is used to hold types of uniform thickness, or nearly so, the aperture which regulates their exit may be of a determinate size, but when the reservoir is intended for all the sizes of a fount I have found the following arrangement useful:—In front of the exit aperture I place three or four thin blades of metal, each provided with a spring, and connected by a catch bar with the pusher that sends the types out of the

“ reservoir. The pusher is made as thin as the thinnest type used, and so are the blades in front of the exit aperture. The mode of operation is as follows:—The pusher being moved forward, it causes the type in front of it to be pushed against the blades; if the type is of a thin sort it only moves one blade, if thicker it moves two, and so on. When the type and blade have been moved a distance rather greater than the width of the type, a projection on the blade is caught by the catch bar, which is thus held back; the pusher now recedes, and the type is free to slide down the incline on which it is lying, and ultimately, immediately before the pusher returns to its first position, it draws back the catch bar over a projection, freeing it from the thin blade, which also resumes its original position by the force of the little spring already mentioned.

“ These types may be made to slide down one common channel, or they may be guided down different ones by connecting a guide piece with the thin blades, and at the extremity of these channels they may pass immediately into receivers to be transferred to other reservoirs.”

[Printed, 2s. 8d. Drawings.]

A.D. 1859, April 26.—N^o 1044.

MACKENZIE, WILLIAM.—“ An improved method of printing impressions upon an enlarged or reduced scale either from engraved plates, electrotypes, block drawings, or other surfaces.”

The surfaces to be employed in this invention are such as have been produced upon an enlarged or reduced scale from an original. A sheet of vulcanized india-rubber, or other elastic substance, having been washed over with a thin coat of transfer composition, and on this, when dry, the design is transferred with transfer ink, either from an engraved plate, block, type, or cylinder, by means of pressure with an ordinary press or by hand. The sheet is then affixed to an adjusting frame and stretched to the required dimensions, and while in this state of tension the drawing is transferred to a zinc plate, which has been well scoured with pumice stone, and afterwards granulated with fine sand until the surface presents an even texture free of all marks and grease. The transfer composition is then washed off the plate, the surface

of the zinc being treated with a weak solution of nutgalls and gum, and the design is then inked in the usual manner. A conducting wire being attached to the plate, the sides and back are coated over with some resinous material, and the whole immersed in a solution of sulphate of copper. By contact with a galvanic battery, as a positive electrode in connection with an electro-negative metal, the surface of the zinc is then removed in the parts not covered by the design and protected by the bituminous matter, and a design produced in relief. When this impression is required in intaglio, the electrotype with the raised lines upon it becomes the mould upon which copper is deposited by electric action, and the crust removed in the form of an ordinary copper-plate.

If an engraved plate is to be copied, an impression is taken from it after it has been charged with transfer ink upon transfer paper and laid on the india-rubber sheet, or on a lithographic stone or zinc plate. By this means a clear and sharp reverse of the plate is obtained, the black or cut lines of the plate being left white. The reverse, after being enlarged or reduced, is transferred from india-rubber to the zinc or other surface, and subjected to the electrotype process as before described, when all the white lines become sunk after the manner of the original plate, only upon the enlarged or reduced scale.

To make an engraved plate from a block or other raised surface, an impression from it in common ink is transferred to a stone previously washed over with gum water. Gold or silver leaf is then laid over the whole, and this being subjected to pressure, adheres to the ink, and presents the impression in gold, &c. Transfer ink is then washed over the whole surface, and the impression "brought up," white lines or spaces being left in place of the covered parts. The negative of the raised surface being thus obtained, it is transferred to the elastic sheet, stretched or diminished, and proceeded with as before described.

[Printed, 4d. No Drawing.]

A.D. 1859, April 29.—N° 1079.

PORTEUS, EDGAR ANDREW, and BURKE, WILLIAM HENRY.
—"Improvements in printing and other presses."

Motion is communicated to the platten in the following

manner:—An axis with a lever, handle, or other instrument for giving a partial rotation thereto, has on it a boss or projection, against which and in suitable notches or recesses, formed at opposite parts of its periphery, two of the edges of two rectangular plates press; the other edge of one of these plates is received into a notch or recess in the platten or other moveable part of the press, and the other edge of the other rectangular plate is received in a notch or recess in a cross head or other resisting part of the press. By this arrangement the platten is acted on very powerfully by the lever or other means used for causing the partial rotation of the axis in consequence of the two plates being thereby brought more nearly in the same plane. "When making a lithographic press, we employ a friction roller under each of the axes or necks of the cylinder or roller, over which the carriage of the press moves, and in order to insure greater accuracy in the movement of the platten of a printing or other press, we prefer to apply apparatus such as above described at both ends of the platten, and whether such apparatus or other means be employed at both ends for giving motion to a platten, we apply V or angular guides to the two ends of the platten, and a bar in the centre thereof, which moves and is guided through a suitable passage in the cross head or other part of the press."

[Printed, 10d. Drawings.]

A.D. 1859, May 2.—N^o 1100.

MOORE, DANIEL.—"Improvements in machinery for rubbing or dressing types."

A line of types is laid on a belt, and thereby conveyed into a machine, in which the types are delivered in a regular and automatic manner from a plate, on to which the belt passes them to a revolving or notched slice plate which conveys them, letter end first, between dressing tools or cutters, which remove by successive cuts the burs or projections left in casting. The cutters are formed of sectional tapering diagonal plates, so as not to become clogged with the cuttings from the types.

Provision is made for conveying away the dust and cuttings, and brushing the types clean before they are taken from the notched slice plate by a reversing apparatus, which turns the types round, and deposits them with the base downwards in an apparatus

which sets the types up into line ready to be finished with a groove in the base as usual.

[Printed, 1s. Drawings.]

A.D. 1859, May 3.—N° 1110.

MORSE, JEDEDIAH.—“Improved power printing press.”

1. Peculiar construction of the platten rails; each of such rails being constructed “with an inclined chute or rise and a depression; the purpose of the chute being not only to steer the platten clear of the sheet-discharging rollers, but to form a rest for the lower or moveable portion of the inclined feeding table, the depressions of the rails being to receive the rearmost wheels of the platten, so as to hold the platten back or away from over the bed.”

2. Arrangement and combination of a slider with the operating cam of, and the pin or stud projecting from, one of the rocker toggles of the bed; the purpose of such slider being to prevent an impression being given by the bed.

3. Peculiar device or mechanism for gradually moving forward or placing of the rocker toggles during the falling of the bed.

4. Combination of wheels, lever nippers, and devices for operating or opening and closing the said nippers for the purpose of receiving a printed sheet of paper from the carrying tapes, reversing it, and so delivering it upon the pile table that the imprinted face of the said sheet is upward, in order that the imprint thereof may be easily examined.

5. Mode of constructing the nippers for receiving the sheet of paper and drawing it over the form of type.

6. Constructing the lower nipper with a raised lip on its front edge for the purpose of elevating or bringing the paper up to the level of the type printing surface, so as to enable the printing to be done close up to the nippers.

[Printed, 10s. Drawings.]

A.D. 1859, May 6.—N° 1139.

HART, FREDERIC WILLIAM.—(*Provisional protection only.*)—“Improvements in photographic apparatus.”

1. Photographic printing frame, so constructed as to admit of adjusting the negative stencil or mask on the prepared paper or

surface, and securing the same thereon as required. "I provide a frame capable of being moved or worked in any direction over or on the backboard or bed on which the prepared surface is fixed, such frame being afterwards secured in the required position, so as to hold the stencil, mask, or negative on the prepared surface ready for printing. This frame is hinged and fixed at one end, so that the reverse end may be released and raised when required in order to inspect and examine the picture as a whole instead of only the half of the same, as in ordinary printing frames, and afterwards again secured in its position without disturbing the original arrangement of the stencil, mask, or negative on the prepared surface."

2. Constructing the moveable frame so as to adapt it for holding tablets or printing surfaces of varying sizes. For this purpose a curved or other slide is adapted and applied thereto, so as to be capable of being moved along the frame to the position required in order to grasp or hold the printing tablet or surface.

3. Applying vulcanized india-rubber or other similar elastic material to the bed or backboard for the prepared surface to rest upon, in order to facilitate the bringing of the printing and the prepared surfaces into the required close contact.

[Printed, &c. No Drawings.]

A.D. 1859, May 16.—N^o 1218.

CLARK, JOHN.—(*Provisional protection only*).—"Improvements in envelopes, and in machinery or apparatus for gumming, embossing, folding, counting, and otherwise treating the same, and in part applicable to the treatment of note and other writing paper."

The envelopes are gummed on the lower part as well as on the flaps. The specification describes in detail the mode of making envelopes by the improved machinery.

With respect to dies used in embossing envelopes and writing paper, and the application of colours in connection with such embossing, common devices, such as garters and shields, are formed in the embossing die. The dies for letters are arranged upon a wheel, which is shifted round to bring into position any letter that is required, and this letter is impressed upon the em-

bossing die by levers arranged for the purpose, provision being made for shifting the embossing die as each fresh letter is brought to bear upon it. Where the letters are wanted in curved lines, the contrivances for shifting the embossing die are modified accordingly. When letters in relief are to be coloured, the ground being left uncoloured, or being coloured differently, the letters sunk in the embossing die are made of the exact shapes of an easily obtainable type, such as are used by letter press printers, and a stamp is formed of such types wherewith to print the paper prior to the letters being thrown up by the embossing action.

When colour printings are combined with die embossing in such a way that two or more impressions are required upon the same part of the envelope or paper, the blanks are passed by means of rollers moving intermittently from one die or stamp to the other. All the dies or stamps are actuated between each forward movement, and operate upon separate blanks, each at a different stage, so that a completed blank is delivered at each movement when the machine is once in full operation.

[Printed, &c. No Drawing.]

A.D. 1859, May 26.—N^o 1300.

PATRICK, HUGH WILLIAM.—“A new substance or material to be used in lieu of ivory and other like substances.”

Among the other applications of the new substance are “photographic purposes,” and the “formation of blocks for engraving and printing purposes.”

The new substance is compounded of amber, Canada balsam, the Australian gum, cowdry, potato, flour, or fecula. “With these, or any of them, I find it advantageous to combine meerschaum, paper pulp, calcined bones, fluorate of silica, sulphate of mercury, or other metals, chlorides of zinc or other metals, alkaline preparations, asbestos, fluxed or fritted colours, or finely powdered pumice stone, or sulphur, india-rubber, or similar gum.”

The combinations may be effected in various ways, such as by reducing the gums to solution, or hard bodies or precipitates, or by the application of heat. The substances to be incorporated or combined with the gums should be previously reduced to suitable fineness for mixing, so as to obtain a plastic mass, which may be

rolled into sheets or other suitable forms for moulding. When shaped or moulded, the new material is hardened by the application of heat, and will bear a high polish. It may also be dyed, stained, or otherwise colored, either when completed or in the course of manipulation or manufacture.

[Printed, *ad.* No Drawing.]

A.D. 1859, June 7.—N° 1393.

MUIR, FRANCIS.—(*Provisional protection only.*)—"Improvements in ornamental or colour printing."

This invention relates to a system of multi-colour printing, "whereby very superior effects are obtainable with a comparatively few number of printing impressions." Supposing there are five colours in the design, the first two are printed on the surface, to be "printed by corresponding blocks in the usual way. "The other three colours are put on from a single sieve or colour box, that is to say, from a sieve on which the three several colours to be printed are laid in stripes at predetermined positions. In this way, as the block is laid upon the sieve it takes up the three colours on the predetermined portions of the figure, and when applied to the cloth or surface to be printed, it deposits its three several colours so as to form actual integral or detail portions of the pattern. This system of printing, whilst it economises the process, also provides for a 'rainbowing' effect to a certain extent, and it enriches the pattern correspondingly." The different colours are applied to the sieve by means of a cellular feeder, formed into a series of colour rolls open at the top. The bottom of the feeder being fitted with two parallel loose running rollers, to which the several colours find access through conducting holes. For rainbowing, the rollers are themselves covered with sieve cloth. When not used for rainbowing, the rollers are grooved or cut into annularly at each part which receives colour, and thus the colours are distributed evenly and sharply, for the purposes herein before described. "This system of multi-colour printing may be carried out without the use of single-colour printing at all, the different colours being laid on by means of one or more multi-colour blocks or surfaces. These multi-colour blocks are arranged in such manner that two or more colours may be taken off from

“ one sieve surface, and other colours forming a portion of the pattern may be arranged on corresponding blocks, so as to fill up the blank spaces or parts left unprinted by the first blocks, these secondary colours being taken from another sieve surface arranged in conjunction with the improved apparatus.”

[Printed, 4d. No Drawing.]

A.D. 1859, June 14.—N° 1435.

MACDONALD, ALEXANDER.—“ Certain improvements in machinery or apparatus for punching patterns or devices upon metallic printing rollers or cylinders.”

A hammer is made to strike the pattern punch, and thereby impress or stamp the cylinder with the pattern. “ This has hitherto been accomplished by hand, and my improvement consists in the novel adaptation and application of a self-acting motion for causing the hammer to be lifted and the punch to be struck in such machines with regularity of time and intensity of depth or pressure. The apparatus consists simply in an arrangement of compound levers, coupling rods, and ratchet wheels, which are in connection with a pattern disc or wheel and ‘pitcher,’ such arrangement receiving motion from a crank driven by an ordinary rotating driving wheel and shaft. By this application the machine will require no individual attendant, and a greater number of patterns may be punched with more precision than hitherto.”

[Printed, 1s. Drawings.]

A.D. 1859, June 21.—N° 1493.

PARKES, ALEXANDER.—“ Improvements in the manufacture of cylinders and tubes of copper and alloys of copper.”

To prevent the irregularity in cylinders drawn through dies, particularly when the discs or blanks were of considerable thickness, in place of using discs or blanks of uniform thickness they are made less in thickness from the centre outwards. When cylinders are made by bending sheets of copper, in place of joining the edges by solder, the cylinders are heated to a high degree, short, however, of their melting point, and then the butting or lapping edges are caused to melt or run together by jets of gas

actuated by pressure and blast. In order to enlarge the diameter of copper cylinders, they are mounted on mandrils and subjected to the action of a steam or other hammer, the cylinder being moved round under the hammer, so that all parts may be equally hammered. In order to increase the length and decrease the diameter of a copper cylinder, a mandril of somewhat less diameter than the interior of the cylinder is used, of such length that its end may come just at the pinch of the grooved rollers by which pressure is to be applied. The cylinder or tube, as it comes up to the pinch of the rolls, is compressed to fit the internal mandril, and will be rolled out to a greater length, and this process is repeated till the desired diameter is obtained, a mandril of a less and less diameter being from time to time used. In place of making short tubes or cylinders by punching out the central portion of a block of copper, which externally is of the form of the interior of the holding die, blocks of such metal are used which do not fill the hollow die, but only touch it at intervals. The punch in removing the central portions causes the metal to expand and fill the holding die at those parts where it has not previously filled; and in drawing copper cylinders, "in place of commencing
 " with a hollow cast or otherwise formed short block, as heretofore, of the same external form as the interior die through
 " which it is to be drawn, I make such hollow block externally
 " of several sides, or with grooves, so that in drawing the same
 " through a die, the same will only touch the interior of the die
 " at intervals, and the drawing is continued through a succession
 " of dies till the exterior of the tube or cylinder is brought to
 " correspond exteriorly with the interior of the die last used."

[Printed, &c. No Drawing.]

A.D. 1859, June 27.—N^o 1532.

DICK, ROBERT.—" Keeping accounts current in printed form.
 " for addressing cards, circulars, papers, and periodicals of all
 " kinds with great rapidity by the aid of a very simple machine,
 " which is a constituent part of this invention."

The names and addresses of the persons whose accounts are to be kept are set up in type in columns, and in connexion with each name is a precise statement of the individual's account in figures, symbols, dates, or numbers, or whatever else will represent the

extent to which each is debtor or creditor. From the type thus set up an impression is taken, which exhibits, in printed form, the accounts as set in type. On this impression, placed as the first folio of a fitly prepared skeleton book, to be carefully preserved, the accountant enters all alterations occurring in the state of the accounts up to the period fixed for balancing the sheet, at which time the types are changed, so as to incorporate and truthfully represent all the alterations that have taken place in the accounts. From the type thus corrected an impression is taken, "to constitute folio No. 2 in the skeleton book, and thus onward in continuance. When it is desirable to render or transmit the accounts at the expiration of any balancing period, an impression is taken from the type, in addition to the one required for the skeleton book, its columns cut apart, and the head of each succeeding column is gummed to the lower extremity of that preceding it, till the whole forms a continuous web. This is reeled (like the paper web of the telegraph operator) into the simple machine . . . by which the back of the web of accounts is rendered adhesive, the accounts cut off separately, and firmly stamped on cards, circulars, papers, or periodicals, at the rate of 3,000 an hour."

[Printed, 10d. Drawings.]

A.D. 1859, June 29.—N° 1548.

TIREBUCK, ISAAC.—"Improved machinery for printing from engraved plates."

Application to single cylinder letter press printing machines of apparatus for printing automatically from engraved plates. Over the reciprocating bed to which the plate is secured a rotary brush is mounted, the same being carried by slides supported by the main framing, and worked by slotted rock levers being connected by rods to crank pins on the ends of the pressing cylinder. The brush, as the table moves under it, takes up ink from an inking slab, and lays it on to the face of the plate. For cleaning the face of the plate, an elastic scraper or doctor of thin sheet steel, held fast in a clamp, is employed. This doctor is carried by a rotating axle, which turns in bearings in the main framing, and is set obliquely, instead of at right angles, to the line of traverse of the plate. The adjustment of this doctor is such, that as the plate

passes forward towards the pressing roller, it presses upon the face of the plate, and scrapes off the superfluous ink. The plate then passes forward, and meeting with the paper, which is fed on to the cylinder in the usual way, passes with it under the cylinder where the nip is given to ensure the transfer of the ink from the lines of the plate to the paper. The printed paper is then carried away by the cylinder from which it is to be taken by an attendant; the plate meanwhile returning to receive a second inking. Before, however, the plate passes in its return movement under the doctor, an axial motion is given to the doctor shaft, to throw up the steel blade clear of the plate. In its raised position it is caused to dwell, for the purpose of being cleaned by an attendant. A spring stop arrangement is provided for retaining the doctor in position after performing given portions of its rotation.

[Printed, 10d. Drawings.]

A.D. 1859, June 20.—N^o 1557.

BROOMAN, RICHARD ARCHIBALD. — (*Communicated from abroad by Jean Théodore Dupuy of Paris.*)—"Improvements in "lithographic and chromo-lithographic presses."

The object of this invention is the production of an increased number of impressions. The main features of it are: firstly, to produce in a given motion of the crank a double course of the table of the press; and secondly, the arrangement of points or guides, whereby several colours can be made to "register" accurately. These guides facilitate the correctly fixing of the stones as often as may be necessary to replace them, and whatever may be their number. In order to obtain a double course of the table of the press, it is supported on wheels or rollers, and carries a rack on the under side; a toothed wheel connected by a rod to a crank, or to a wheel to which rotary motion is imparted, takes into the rack on the table, and also into a similar fixed rack supported on or above the floor. The cylinder holding the paper on which the impression is to be made is provided with a clip governed by springs and rollers, acted upon by the revolution of the cylinder in such manner that immediately on the impression being produced the clip releases the paper, and opens to receive another sheet of paper, which after being printed it releases, and so on. The "register" guides consist of points inserted in

arms pivoted on a stud affixed to the frame of the press. These points indicate the correct "register," and are pivoted over clear of the stones, so as not to interfere with their being placed and removed when necessary. Guides for obtaining correct register in an opposite direction to that of the points are provided with hinges to allow of their being removed out of the way of the stone while being laid on or removed.

[Printed, 8d. Drawings.]

A.D. 1859, June 30.—N° 1562.

WILKINSON, JEPHTHA AVERY.—"Improvements in printing presses and apparatus connected therewith."

The types, blockings, quods, &c., in composing are made so as to set on to the surface of a cylinder, being tapering on two sides and parallel on the other sides. These are set up and a proof taken and corrected by a peculiar device called the proof cylinder and correcting stand. The types are so attached to the main cylinders of the press that portions can be removed when desired. The cylinders, when dirty, are made to revolve in an alkaline or other solution, which removes the ink from the types. The press itself receives two type cylinders, that act one above the paper, the other below. The paper is fed from an endless web on to an apron, passes over arched bearings between the cylinders, beneath an endless tympan-sheet or apron in receiving the second impression, and is thence delivered into a revolving shear, which cuts the sheets off against an inclined or curved surface. The types are inked by a peculiar arrangement of rollers, cylinders, workers, and ink troughs, and these ink rollers are arranged to be brought to the types and adjusted thereto by moving frames and screws. The impression is thrown off by lifting part of the frame. The printed and cut sheets are thrown off by an arrangement of bands, and packed one above the other, and a belt conveys them away. A series of counting discs denote the number of impressions thrown off.

[Printed, 2s. 2d. Drawings.]

A.D. 1859, July 20.—N° 1709.

NEWTON, WILLIAM EDWARD.—(*Communicated by William Hermann Stiibbe, of Boston, U.S.*)—(*Provisional protection only.*)—"Improvements in self-acting lithographic printing machines."

This invention consists: 1. In the means of supporting a revolving tympan in combination with a scraper. 2. In an improved mode of applying the parts which carry the tympan and scraper, for the purpose of preventing any damage occurring to the stone by reason of the too great rigidity of the scraper, or the parts which support it. 3. In a novel method of driving the revolving tympan, whereby its operation is caused to be suspended during the movement of the stone in one direction, for the purpose of permitting the moistening and inking of the stone to be effected, and whereby such operation is resumed again as soon as required for the purpose of producing the impression. 4. In certain apparatus for moistening the face and back and front edges of the stone.

[Printed, &c. Drawings.]

A.D. 1859, August 3.—N° 1790.

MASON, MARK. — (*Provisional protection only.*) — "Improve-
ments in machinery for printing, and in apparatus connected
" therewith."

The nature of the invention consists: 1. In supporting the type or other printing surface in a double frame, to which an up-and-down or to-and-fro motion is given. The inking or colouring and impression rollers are placed at each side of the double frame, which, when moving, prints the paper or other material passing over the pressing rollers. In order to increase the production, four or other convenient numbers of inking or colouring and impression rollers may be placed on each side of the machine. 2. In an improved mode of supplying paper to letterpress printing machines. A roll of paper is supported in fixed bearings, or on friction rollers. This roll is unwound by giving motion to the friction rollers, or otherwise, and when a given length of paper is unwound, it is cut off by a knife or other instrument, and carried forward by tapes or other suitable apparatus to the printing machine. 3. In an improved combination of machinery for removing the printed paper from letterpress printing machines. This consists of a series of clamps, put in motion by endless bands, from which project catches. When the clamps have taken hold of a piece of paper, the catches of the endless bands take it from the printing machine and deliver it on to a table on which the pile of paper accumulates. The clamps then liberate the paper, and are carried back towards the printing machine by counter-

weights or other equivalent means ; after the next sheet of paper has been taken from the machine the clamps are again opened as before.

“ A similar combination of machinery may be applied to carry forward the paper after the operation of damping has been performed in the usual manner. In this case the clamps are stationary, and the paper is deposited on a series of rollers, which are carried forward by the catches and endless bands above referred to. The clamps take hold of the paper when brought forward by the rollers, and hold it until the rollers return for a fresh ; they then liberate the paper, which accumulates in a pile, as now customary.”

[Printed, 4d. No Drawing.]

A.D. 1859, August 5.—N° 1811.

THOMPSON, WARREN.—“ An improved printing telegraph.”

The system employed in this invention is that of the “ step or escapement motion ” to bring forward the letter to be printed. This is effected by means of a circuit-breaker governed by a circular finger-board arranged as follows :—On the shaft of an escapement, similar to that of a common time piece, governed by a very short pendulum, which serves to give a perfectly regular number of vibrations in a given time, to regulate the number wanted, is placed a horizontal wheel containing thirty teeth, between each of which is a hole pointing towards the axis, in which are placed a corresponding number of little pins about one-third of an inch long ; in front of each one of these pins is a rectangular lever, on the end of which is marked the letter, in pressing upon which you push in the pin in front of it, the lever entering the teeth of the wheel. As soon as the lever leaves the teeth of the wheel, it starts off and runs until the pin pushed in stops the movement by coming against a fixed post, which holds it fast until the next letter is made. Each time that any one of the levers are pressed upon a pin is driven in, and the preceding one which stops the wheel is pushed out, and lets it run until the last one pushed in comes and takes its place. The electrical current is made and broken by the vibrating movement of the pendulum. The apparatus for receiving the despatch is also put in motion by clockwork. The type-wheel is placed upon the escapement shaft, and is hitched by means of a coupling wheel, and is liberated each

time a letter is printed by means of a forked lever, which is raised by a cam on the shaft of the printing movement. Each time the type-wheel is liberated it flies back to its starting point; in doing so it pushes back a spring that holds suspended the coupling wheel, and allows it to drop and hitch the type-wheel to the shaft, to be carried forward as soon as the vibrations recommence. The printing part consists in a clock movement of considerable strength, on the fourth shaft of which is a cam wheel of four cams, regulated by an escapement which lets pass an arm, which makes a revolution each time that the instrument is put in motion. This is done by a ratchet-wheel placed upon the type-wheel, which each time put in motion raises a lever or finger, which cannot fall back until the wheel stops. The movement of raising and letting fall the said finger lets the arm pass and prints the letter. The arm in making its revolution moves forward the paper.

[Printed, 10d. Drawings.]

A.D. 1859, August 9.—N° 1837.

ROLLAND, PIERRE FRANÇOIS.—“A new electric telegraph.”

For printing despatches in ordinary typographical characters, the dial carries on two separate lines—the alphabet and the ten numerals. “I move the handle destined to open the current and produce the impulsion until it faces the letter or numeral to be printed. As this movement takes place at the communicating end, a similar one takes place at the other end upon a wheel carrying upon two lines the alphabet and ten numerals, no longer on the surface, but around its circumference and in relief. This done, the handle at the communicating end is brought down into a species of groove, and by this simple movement and the use of the apparatus already known as a commutator, the pole of the two electro-magnets changes, and thenceforth one of the two permanent magnets is repelled and the other attracted. It is by using the force obtained by this changement of pole, aided by a plug placed at the end of a lever in communication with the electro-magnet at this moment attracted, that I push the sheet of paper to be printed against the wheel having the characters on its circumference, and as not only the paper (which is in strips) is conducted by means of cylinders beneath the wheel bearing the characters, but these characters have been charged with ink in their movement by passing an inking cylinder, the

" letter or numeral will be found properly printed. The person telegraphing has but to continue the same operation, and words, numbers, and phrases will be rapidly reproduced by impression. The same result may be obtained without the two permanent magnets, but in this case two wires of communication will be necessary."

[Printed, 10d. Drawings.]

A.D. 1859, August 22.—N° 1914.

PETTER, GEORGE WILLIAM, and GALPIN, THOMAS DIXON.
—" Improvements in printing presses."

A shaft turned by any suitable power imparts motion through a crank or arm to lever-beams, so as to cause the ends thereof to move through an increased space, and thus by connecting rods to move the type table to and fro. A rack on the table gears into a toothed wheel fixed on the cylinder, which is thus turned nearly through a revolution. Several teeth are removed in the wheel to allow the rack to move both ways, while the cylinder and wheel move only in one direction. A friction break pressing on the cylinder facilitates the stoppage thereof as it comes to the end of each revolution. Each of the teeth of the wheel near the part from which they are removed has the inner corner bevelled off to allow the motion of the rack, which has a moveable or tumbling tooth at each end taking into a recess in the cylinder, so that one drives the cylinder fairly up to its point of rest and the other starts it again. The cylinder is held fast while the table recedes by a catch or catches released before another revolution is commenced. The canvas and blanket are strained in separate bars, which may be tightened by a key acting on the end of each, protruding through the end of the cylinder. The stop near the end of the laying-on board, or the end itself, sinks at the proper time to allow the paper to be drawn on by the grippers. The inking vibrator roller runs for some distance on the inking table, and is hung on levers attached to a bar mounted by a lever arm which is adjustable so as to allow the roller to be raised to a proper height if the rollers alter in size. The laying-on board is hinged so as to turn up when access may be had to the type table, and the guard at the end of the bed is made easily moveable to admit of forms being slid on the table.

[Printed, 1s. Drawings.]

A.D. 1859, August 22.—No. 1920.

PARKES, HENRY.—“Improvements in the manufacture of cylinders and tubular or hollow bodies of copper and alloys of copper, or other ductile metals.”

The invention has for its object: 1. The remanufacture of worn-out calico rollers or cylinders of a like kind which have not been used for such purpose, so that the same may be used for printing from.” The roller is annealed and closed flat at a red heat. Having been opened throughout its length, it is again annealed, and a mandril of an oval form is inserted and drawn through the metal, or the metal is drawn off the mandril. The process is repeated until the metal is opened out into a cylindrical shape, when it is finished by drawing it on a mandril at a draw-bench through holes, or “with rolls in the ordinary way practised by tube and roller makers.” It may be “fixed on an iron or other body by any of the methods now in use for fitting up their shells for printing purposes.” 2. Cylinders, tubes, or hollow forms are produced by forming flat blocks or ingots, rounded at the edges, and with a slit through them corresponding to the required circumference or shape, and by drawing them flat through holes or rolls decreasing in size every time the metal is drawn. The cylinder, &c., thus manufactured is opened out and finished as in 1. 3. “In making cylinders or tubes it has been the practice of the trade to use steel mandrils to draw them on, of great length, and when of large size and great weight these are very costly. I make cylinders and tubes by drawing them over a mandril formed with a short end of steel, over which the cylinder or tube is to be drawn. This short end is thicker than the stem, which . . . is made so as to be held firmly at the back to prevent the larger or steel part passing too far through the hole of the draw-bench or between the rolls when in use. The end of the cylinder or tube which first comes on the steel part of the mandril is opened out to such an extent as to admit of its passing over the steel part of the mandril, so as the end of the cylinder or tube may be passed through a die or draw-plate, or without a draw-plate, and to be securely fixed or held beyond by plyers or otherwise to the chain or screw of a draw-bench or other drawing or forcing apparatus, and by it the whole length of the tube or cylinder . . . is drawn through the die or draw-plate, if one is used.

" and over and off the mandril at the same time, which is held back by its stem or rod."

The metals to be treated by this process are copper and its alloys, silver, gold, aluminum, and their alloys for hard metals, and tin and zinc and their alloys for soft metals.

[Printed, *ad.* No Drawing.]

A.D. 1859, August 29.—N° 1968.

BESLEY, ROBERT.—(*Communicated by William Shaw, of Melbourne, Australia*).—(*Provisional protection only*).—"Improvements in machinery for printing, and for numbering and perforating documents."

By this invention "perfecting and other machines may be rendered self-feeding, and also made capable of printing consecutive numbers, and of dividing and perforating (when such is required) the printed paper." The paper is supplied to the machine in continuous bands, in lieu of sheets, "and led over and under the printing surfaces by means of tapes, bands, or rollers, to receive the impression upon the opposite sides thereof."

The numbering cylinder, with its figure, wheels, drum, and central spring, is constructed on the same general principles as in numbering machines, with the following exceptions:—The unit wheel has ten projections, but as it revolves with and not on a drum, it may be firmly attached to the latter. The tens, hundreds, and thousands wheels must be made to move on the drum. Each of these latter wheels is provided with one hundred projections, on which are engraved ten successive series of figures, each series being from 1 to 0. After the figure 9 is printed, the second or tens wheel has to be retarded for $\frac{1}{100}$ th of its revolution; this change brings the series of figures 1 in the position previously occupied by the figures 0 on that wheel, ready to receive the pressure of the raised impress surfaces of the under cylinder. The intervening figures, not receiving any impression from the under cylinder, escape being printed. When the band of printed paper is required to be perforated, a pair of perforating cylinders is employed, the same being so constructed that the perforating points in the one cylinder enter the cavities in the other.

For printing progressive numbers in a platten press, "instead of having the figures engraved upon circular rings, they are engraved in straight columns, and the changes effected by the

“ outward motion of the table of the press, a click or catch
 “ attached to the table operating upon a ratchet cut in the under
 “ part of each figure slide. The self-acting changes, however,
 “ being exhausted at every tenth change, the slides must occa-
 “ sionally be moved back to their original position by hand or
 “ otherwise; and when several columns of figures are worked
 “ together, as in the case of printing railway tickets, the corre-
 “ sponding slides, the unit slides, for instance, in the respective
 “ columns may be simultaneously moved by bars fixed on or
 “ under the table of the press. The figures which are not to be
 “ printed must be shut off from contact by the intervention of
 “ the frisket; this arrangement corresponding in effect with the
 “ cutting away of the under cylinder in the cylindrical numbering
 “ apparatus. When applying the self-feeding process to platten
 “ machines, the paper is to be drawn by rollers at regulated equal
 “ intervals between the reversed plattens, the printing on both
 “ sides of the sheet being completed in its progress.”

[Printed, 4d. No Drawing.]

A.D. 1859, September 3.—N° 2016.

DAVIES, GEORGE.—(*Communiated by Alois Aner, of Vienna*).—
 “ Improvements in printing, and in apparatus connected there-
 with.”

The invention consists principally in the employment in typographic, lithographic, and copper and other plate printing presses, of endless paper instead of the separate sheets, and in damping off the paper by an automatic apparatus which directs it on to the press. This system has also the advantage of enabling the printing press to be put into immediate connection with the paper-making machine. The endless paper is passed around rollers, which keep it at the requisite tension, being prevented from unrolling too fast by a break and weighted lever, and is drawn forwards by means of two feeding rollers covered with cloth. The paper is then cut transversely by a pair of automatic scissors or cutters and passed to the printing cylinder. In order to cut the paper into two or more sheets longitudinally, after being printed, it passes between pairs of revolving circular cutters arranged for that purpose. The sheets are then delivered by automatic means from the machine.

The damping apparatus consists principally of two hollow perforated metal rollers containing water, and covered with cloth or flannel, round which the endless paper passes in its progress from one roller to another.

[Printed, &c. Drawings.]

A.D. 1859, September 5.—N° 2024.

BARRE, JEAN BAPTISTE HENRI HONORÉ RAYMOND, and
BARRE, JEAN BAPTISTE MARIE ERNEST.—“Improvements
“in cutting out or engraving metals and their alloys.”

The invention relates to cutting out, engraving, or perforating metals and their alloys by a chemical process, and consists chiefly in covering (by the aid of printing) the parts to be left intact with a fatty or resinous body, impenetrable to azotic acid, and leaving bare the parts which are desired to be acted upon by the acid. For example:—“Suppose that we wish to cut out a design on
“a plate of copper, we first draw the design on a lithographic
“stone, and then ink the same with a suitable mordant or
“adhesive medium, which may be composed as follows:—One
“half part of printers’ mordant, and one-half part of copal oil,
“varnish, coloured with black printers’ ink. We then take an
“impression on paper, and by the aid of a lithographic press or
“other pressure, we transfer the same on to the copper plate
“which we wish to engrave, and remove the paper by slightly
“wetting the same, when the design will be found transferred to
“the copper plate. The design having been thus produced on
“the plate in the mordant or adhesive medium, is to be powdered
“with a resinous or fatty substance impenetrable to azotic acid,
“which may be composed of two-thirds of a resinous substance
“and one-third wax, melted together and pulverized. The plate
“is then heated and re-powdered with resin only; and this operation is repeated until a sufficient coating has been produced
“to resist the action of the acid perfectly for a lengthened period.
“The plate is then to be submitted to the action of azotic acid,
“which will attack and dissolve the uncovered parts, and thus
“bite in or engrave the design, and if allowed to remain a sufficient length of time, the design will be cut out or perforated
“entirely through the plate.”

[Printed, &c. No Drawing.]

A.D. 1859, September 12.—N° 2081.

COLLINS, HENRY GEORGE.—"Improvements in producing
" printing surfaces on stone, metal, and other materials capable
" of being employed in printing in the manner of lithographic
" stones; also in the production of printing plates and surface
" printing blocks, and in transfer inks."

In order to obtain a transfer from an engraved plate or a surface block, an ink is used composed of tallow, brown soap, white wax, printing ink, gum mastic, and gum shellac. The impression is taken on transfer paper, and transferred to the printing surface of stone, metal, or other material in the ordinary manner, "preferring, however, to employ a plate of copper coated with a film of zinc. For drawings or writings to be transferred, the ink is composed of white soap, bees-wax, gum shellac, and goose-grease. If it be required to enlarge or diminish the design before transferring it to the stone, &c., the impression from the engraved plate or surface printing block is taken on a surface of india-rubber, and the india-rubber is either extended or allowed to contract before the design is transferred to the stone, &c., as is described in the Specification N° 439 of 1858.

"In order to produce a printing surface on stone or other similar material by means of photography, I prepare the surface
" of a sheet of vulcanized india-rubber with a composition of
" chromate of potash and molasses, and I produce a photographic
" image on this surface either by means of a camera or in the
" manner ordinarily practised in printing photographs; I then
" either extend the sheet of india-rubber or allow it to contract,
" in order to bring the photographic image to the size desired,
" and transfer the coating of chromate of potash and molasses on
" to a stone, metal, or other surface, and wash it with mucilage
" and acetic acid, which removes the portions of the coating
" unchanged by the light. I afterwards ink the stone or other
" surface in the ordinary manner, and print as is usual in litho-
" graphic printing. . . .

"In order to obtain a surface printing block, I first transfer the design to a surface of stone, metal, or other material
" capable of being employed in printing in the manner of litho-
" graphic stones, preferring, however, to use a metal plate. This
" may be done by either of the processes herein before described.
" I then ink the plate or surface and dust it over with powdered

“ gum copal, which adheres only to the inked portions of the plate or surface ; this is then bit in with an acid or other liquid. For zinc plates I prefer a solution of sulphate of copper, and I sometimes assist the action by means of electricity. When the action has proceeded for a short time the plate or surface is removed from the liquid, and the most delicate lines are stopped out with black varnish, and the biting is repeated until other lines require stopping out, and thus the process proceeds until it is complete. If stone be employed in place of metal, a gutta-percha or other matrix is taken from it and electrotyped to produce the printing block. To obtain plates suitable for plate printing, I proceed in a similar manner to that employed for producing surface printing blocks ; the design transferred to the surface of the plate at the commencement of the process should, however, have the lights and shades reversed.”

[Printed, 6d. No Drawing.]

A.D. 1859, September 13.—N° 2086.

LEBOURGEOIS, ERNEST AUGUSTE FREDERIC.—“An improved machine for providing with pin-points the blocks employed for surface printing on calico, paper, or other similar materials.”

The invention consists in means for mechanically fixing these pin-points, wire, or stencil-pins. The machine consists of a table with a vertical frame, and of a reel or drum carrying the wire out of which the pin-points are to be cut. The end of the wire is taken between the nippers of a pair of pincers, the latter at each lowering of a treadle and lever mechanism is opened, and caused to advance the required length, after which the nippers closing, and being caused to recede by the action of a spring carry with them the wire, the end of which passes through a guide tube, and is thus brought under a sort of knife acting as a saw, a horizontal to-and-fro motion being imparted to it at the same time that a revolving motion is given to the wire ; by these means a suitable length of wire is cut off, and as the cutting edge of the knife is bevelled, the end of the wire receives a pointed form. The point thus cut off falls in a vertical tube, by which it is guided to the end of a second tube, enclosing the first, while the workman acting on the end of the treadle causes the lower end of the latter tube to press on the top of the pin-point, and thereby forces it

to enter at a suitable depth at the required spot in the surface of the block on the table, after which the tubes recover their positions by springs. The tubes are further "inserted in a proper guide tube, and receive motion from a lever arm, connected with and acted on by the treadle, which lever arm, by suitable connecting rods, levers, and gearing, transmits the motion to the pair of pincers, the cutting knife, and the guide tubes for the pin-points. The workman causes the block in the surface of which the pin-points are to be implanted, to glide over the table under the end of the pressing tube, according as required by the pattern to be formed on this surface by the said pin-points, the outlines of the pattern having been delineated previously on the surface of the block."

[Printed, 1s. Drawings.]

A.D. 1859, September 14.—N° 2095.

BESLEY, CHARLES.—"Improvements in preparing and obtaining printing surfaces with designs sunk, as also in relief."

A sheet of glass or other level non-conducting surface has applied to it a coating of varnish or [suitable matter, on which when dry the design is drawn. The varnish is laid on with increased thickness at places where large blanks or whites are to appear in the print. The plate thus prepared is then immersed in the bath of a galvanic battery, and a deposit obtained upon it by electrical action. When this metal coating is of sufficient thickness it is removed from the bath and glass plate, and a surface is obtained representing the design in relief, and this, when backed with lead and wood, can be printed from.

To obtain the surface with the design sunk instead of being in relief, it is simply necessary to draw the design in varnish or suitable matter to form a raised surface on the glass, which drawing will be sunk in the metal deposited on it, while the smooth surface of the glass will receive the face of the plate of metal deposited.

[Printed, 4d. No Drawing.]

A.D. 1859, September 14.—N° 2098.

APPLEGATH, AUGUSTUS.—"Improvements in machinery for printing, and for cutting printed paper into sheets."

For these purposes two surface printing rollers are used between

two pairs of cylinders, each covered with blanketting, and in order to prevent as much as may be the effect of set-off on such cylinders where the already printed paper comes in contact with the cylinders, they are each made of two or more times the circumference of the printing surface rollers; and further to prevent the effects of set-off, each cylinder may be provided with moveable blanketting on the inside, capable of being moved a short distance over the exterior surface of the cylinders from time to time, in order to bring up fresh quantities of the blanketting. The combination of the surface printing rollers and the cylinders is so arranged as to admit of two webs or lengths of paper being simultaneously printed on both sides; the paper, after receiving an impression on one side, passes over or against rollers with endless or other blanketting or absorbing material, so as to have any superfluous ink or colour removed from the impression before the paper is printed on the other side, and after such second impression it is also subjected to the action of like absorbing apparatus, being passed to the cutting apparatus, which consists in each case of a cylinder coated or covered with a material into which puncturing or cutting points or blades may penetrate, and such puncturing cutters are set on rollers in such manner that the puncturing of one roller shall be intermediate to the other or others, so that when the paper has passed the rollers the paper shall be divided across. The printed paper thus divided is delivered at several different places by means of carrying tapes or aprons on rollers, in such manner that one pair of delivering tapes or aprons may (by one pair of the rollers by which the tapes or aprons are carried being arranged so as to be moved from and to two or more sets of endless tapes or aprons) deliver to two or more sets of carrying tapes or aprons. Apparatus for damping the paper is also applied. The apparatus for dividing the printed paper into sheets and the printing machinery may be separate, the cutting machinery being used to divide the paper after it comes from the printing machine, or the cutting apparatus above described may be arranged to cut the paper before it comes to the printing rollers.

[Printed, 1s. 4d. Drawings.]

A.D. 1859, September 15.—N° 2102.

WOOD, JOSEPH THOMAS.—(*Provisional protection only.*)—
"Improvements in printing and embossing dies."

The invention consists in screwing a block or blocks of steel,

containing the required word, letter, figure, or device, on to a foundation plate, and in surrounding the block or blocks with a frame embossed with any required design or device. The frame rests upon the foundation plate, and the top of the block and frame when ready for the press form a level surface. The whole may be printed in colours, or the block or blocks may be in one or more colours, the frame being removed to allow of the application of colour, and the embossing on the frame plain, or the frame embossing may be in colour and the block or blocks plain or in different colour from the embossing on the frame.

[Printed, 4d. No Drawing.]

A.D. 1859, September 26.—N^o 2179.

COLLIGNON, JOSEPH VILLET, and GEORGE, LOUIS.—"Improvements in the Typography."

After observing that if all the letters were connected two and two the operation of composing "would be shortened by one-half, " and by one-third and even three-fourths with elements composed " of three or four letters," and that the formation of logotypes had hitherto been attended with great cost for punches and matrices, besides the risk of loss from one letter becoming battered, the patentees say, "Consequently we have sought an application " for our improved system by other means than that of casting, " and have succeeded in discovering a ready and efficient method " of uniting several letters together. Hence, all the difficulties in " the way being overcome, our improved breviotypy may be " applied to all kinds of printing, which is to composition what " mechanical power is to printing. According to our invention " we cold-solder letters together placed in juxtaposition, and " which consists in coating a letter throughout its surface with " any metallic solder to cause it to adhere to another letter, and " so to form a whole. By this means a defective letter may be " unsoldered, and replaced by a good one, or those used that " remain." This soldering preferably consists of—

Mercury	-	-	-	75	} = 100
Bismuth	-	-	-	10	
Fine pewter	-	-	-	10	
Regulus of antimony	-	-	-	5	

[Printed, 8d. Drawings.]

A.D. 1859, October 7.—N° 2285.

LEE, GEORGE LAWRENCE. — (*Provisional protection only.*) —
 “Improvements in producing printed surfaces.”

A design having been transferred to stone, it is then charged with printing ink, mixed with gold size or drying varnish. When the surface of the stone is perfectly free from damp, the design is dusted with powdered resin, asphalte, shellac, or gum mastic, or any other substance capable of being reduced to powder and resisting the action of acids, and the superfluous powder brushed off. The stone is then placed face uppermost in a bath containing a weak solution of nitrous or other acid sufficient to cover the face of the stone, the acid acting on the parts of the stone not protected by the powdered substance, lowers the surface and leaves the subject in relief. The stone is then dried, and the process repeated several times. After the second or third submersion more powdered substance is applied to the design, and the surface of the stone exposed to heat, semi-liquidizing the resinous matter on the surface of the drawing, and giving greater protection from the effects of the acid to the parts in relief. The stone is then ready to take the matrix either for stereotyping or electrotyping by any of the usual methods.

[Printed, 4d. No Drawing.]

A.D. 1859, October 25.—N° 2438.

NAPIER, JAMES MURDOCH. — “Improvements in printing
 “machines.”

The invention refers specially to cylinder machines for raised surface printing, and consists of improved means for feeding and discharging the paper. The paper is wound on a long roller, which turns freely; “convenient means” are provided for holding the outer end of the length of paper, so that its edge is presented to a vibrating gripper, which at the one extreme of its vibrations takes hold of the end of the paper so presented to it. As soon as such gripper has taken hold of the paper, the instruments which previously held it are relaxed, and the gripper in its return vibration draws the paper with it, unwinding a quantity from the roll of paper until the gripper arrives at the extreme of its vibration, when it presents the end of the paper in such a position that the grippers, dropping-bar, or other apparatus used

in printing machines for taking in the paper, can lay hold of the paper. When the apparatus of the printing machine proper has taken hold of the end of the paper, the vibrating gripper will have let go the paper, and a pair of shears or other cutting apparatus, placed near to the first holding apparatus, will have cut through the paper. The piece or sheet thus cut off passes on through the printing machine, and after passing through the machine is delivered on to a receiving board by means of tapes and rollers. It is preferred to damp the paper before it is cut from the roll.

[Printed, 10d. Drawings.]

A.D. 1859, November 4.—N^o 2514.

NEWTON, ALFRED VINCENT. — (*Communicated by Thomas Walker Gilmer, of Virginia, U.S.*) — "Improvements in type setting and distributing apparatus."

The type cases consist of a rectangular box to receive a column of type, supported so as to vibrate vertically in a frame. The case is open at the top for the reception of type, and at the side for its inspection. A discharge opening for the type is made through the front plate near the lower end, and the bottom of the case forms a rest for the lowermost type. An opening is also made in the back-plate of the case, opposite the front opening, and through this opening projects a discharger attached to the rear of the supporting frame. To the front-plate is attached a sliding spring "dog," with a rounded projection, which descends below the discharge opening and prevents the type falling out. The bottom of the frame is provided with a mouth-piece with projecting flanges that serve as guides to the composing stick when brought to the mouth of the case to receive the type, when, by the pressure of the composing stick, the type case is forced backwards in its frame, the discharger enters the bottom of the case, and projects the lowermost type through the front opening on to the composing stick. The type case is thrown forward again by a spring.

The composing stick is a metallic box of sufficient length to receive a full line. A spring plate covers the top at the receiving end, and is provided with a lip or flange to hold the front type and prevent it falling out, and also to assist in withdrawing the type from the case. A friction slide sustains the back of the type.

and is pushed back by each succeeding type as it is received in the mouth of the stick.

The type-distributing stick in breadth and depth is the same as the composing stick. The front is closed by a plate, which extends above the stick, and contains the mechanism for separating and discharging the type through the bottom. This mechanism consists of a discharger pivotted to one end of a rock lever. A spring acts upon the outer end of the lever, and holds the follower above the type. The bottom of the stick directly in front of the plate is made to open by pushing back a slide, which is held in contact with the bottom of the type case, and is caused to close the opening by the action of a spring, except when the types are discharged. A spring follower presses against the rear end of the line of type, and moves them forward as they are successively discharged through the bottom opening in the case. Between the slide and the front of the stick, and on the under side, tapered openings are made to receive projections on the top of the type case, which, when the distributing stick is applied to the type case, force back the slides a sufficient distance to allow the types to pass. One of these projections strikes the end of the rock lever, and causes the follower to descend and force the type through the bottom of the stick into the type case.

[Printed, 8d. Drawings.]

A.D. 1859, November 9.—N° 2548.

FULTON, DAVID.—(*Provisional protection only*).—"Improve-ments in cylinders or rollers for printing and other purposes."

This invention consists in constructing these in such a way "that a comparatively thin external shell of copper or other metal may be satisfactorily used." The mandril on which the cylinder is mounted, is formed with a slight taper from end to end, and has placed on it a metal shell or slip internally shaped to fit the taper of the mandril. This shell or slip is divided or slit through at one side from end to end, and is capable of being equally expanded by being forced towards the larger end of the mandril. In this way the expanding shell or slip is forced out to fit the internal surface of the external shell, which surface may be formed with or without a taper, provided that the outer surface of the expanding shell or slip is shaped to correspond. *In the case of rollers of large size, cylindrical filling up slips may*

be fixed on the mandril, being tapered externally to fit the expanding shell or slip. "For the purpose of being engraved, a thin copper roller may be mounted on a mandril in the manner hereinbefore described, or it may be held by means of short conical end pieces, such as are ordinarily used, but to prevent these from opening out, the ends of the rollers, in consequence of bearing on the extreme edges only, rings of moderate depth are inserted at each end, their external surfaces bearing against the internal surface of the copper roller, whilst they are coned internally to fit the conical end pieces on the mandril, where the mounting and centering appliances on the engraving machine consist of a number of radial screws tapped into rings, or collars on the mandril rings are applied inside the copper roller for the radial screws to bear against."

[Printed, &c. No Drawing.]

A.D. 1859, November 11.—N° 2565.

BROOMAN, RICHARD ARCHIBALD.—(*Communicated by Jules Michel Isidore Melotte and Charles Jules Thiesset, of Paris.*)—(*Provisional protection only.*)—"An improved method of preparing plates and cylinders for printing from."

The outline of the design is produced on stone; as many proofs are taken as there are to be colours, and these are transferred to as many stones. Each colour and the register are produced in gum, and the design is covered with lithographic ink, and allowed to dry; the stones are acidulated, gummed, and ungummed, then all the design produced by the gum becomes white. Proofs of the design are taken in lithographic transfer ink, and are transferred to plates of polished metal, copper, for example; they are inked and powdered over with bitumen; when the ink is dry, acid is applied to bite out and remove all the parts not protected by the bitumen.

"For engraving on rollers proceed in a similar manner; but the metal should not be bitten entirely through, as with the plates; there must be as many rollers as there are colours in the impression.

"*Method of working.*—The outline of the design is made upon paper, and transferred to, say, copper plates; upon these plates each colour and the register are drawn in acidulated gum, and the plates are covered with engravers' varnish, which is allowed

“to dry; the design is uncovered by wetting the plates, which are then exposed to the action of acids to bite out the design.

“*Printing*.—The paper, cloth, or other material to be printed is stretched upon a bed, over which a light metal frame carrying the printing plate is placed; four points fixed upon the table enter the registers in the plate, first passing through the material to be printed; the frame is then lowered, and the required colour applied by a brush or wad. The colour appears on the material through all the cut out parts of the plate. The frame is then raised, the material is removed from the points, repointed, and the frame with another plate is brought down to apply another colour, and so on for as many different colours as are to be printed.”

[Printed, 4d. No Drawing.]

A.D. 1859, November 14.—N° 2576.

APPLEGARTH, AUGUSTUS.—“Improvements in surface block printing.”

The machinery is arranged to work with blocks or printing surfaces suitable for printing one-quarter or one-half of a handkerchief at each impression, and whether a quarter or half block or surface is used, it is mounted on axes in its centre in such manner that after an impression has been taken on the piece of fabric, the block is turned on its axis and a like impression taken. If it be a quarter block it will have printed half of a handkerchief, whilst if it be a half block it will have printed a complete handkerchief. Or, in place of such half or quarter block being arranged to rotate on an axis, the block may remain in its normal position, the table and fabric being then caused to make a quarter or half turn after receiving the first set of impressions, and in place of making each quarter or each half block of one piece, it is constructed of a plate of metal at the back, with holes therein to admit of several pieces being fixed thereto, so as by their combined impressions to produce a quarter or a half of the whole impression of which the surface of a handkerchief is to consist, and each of the pieces thus used is to have on it, and be capable of printing, a device suitable for producing “corners,” “side-borders,” “centres,” “fillings,” or “blotches,” and other objects. When printing with several colours, the machinery is arranged to work with a series of quarter or half blocks, corresponding in number

with the number of colours which in succession are caused to give off their impressions to the fabric.

[Printed, 1s. 4d. Drawings.]

A.D. 1859, November 19.—N° 2623.

GODCHAUX, AUGUSTE.—"Improvements in the mode of printing forms, or models, or copies of penmanship and designs on paper and other fabrics."

The invention consists in the use of engraved cylinders for printing simultaneously and on both sides models or copies of penmanship and designs of all kinds of one or several colors on paper and other fabrics. At the same time the cylinders can be disposed so as to rule paper, &c., and print drawings in one or several colors, on one or both sides simultaneously, upon paper fabrics or any other material.

[Printed, 10d. Drawings.]

A.D. 1859, November 23.—N° 2653.

BAGSTER, BENJAMIN.—"Improvements in means or apparatus for giving surface finish to paper, which improvements are applicable to copper plate and other printing, as also to embossing."

The improvements, so far as they relate to copper plate printing and embossing, consist in the application of segmental surfaces of cylinders with alternating motion to printing and other processes, facility being given by its double action, so that both ends of the machine can be employed at the same time.

[Printed, 10d. Drawings.]

A.D. 1859, December 13.—N° 2828.

JOHNSON, JOHN ROBERT, and ATKINSON, JOHN STAINES.—"Improvements in machinery for manufacturing printing types."

The invention consists "in applying machinery to effect certain operations in the manufacture of type which at present are performed by manual labour, and which are technically called, 1st, breaking off; 2nd, rubbing; 3rd, setting up; 4th, cutting out the foot and adjusting the height to paper; 5th, bearding; 6th, nicking; 7th, dressing." The types are broken off and

set up on their rubbed sides within a tube by the same operation, a plan "which greatly facilitates the subsequent processes by modifying the casting machine patented by one of us on the 2nd June 1853 (N° 1351)."

The mould is modified by removing the top piece, and forming the fourth side by a sliding piece similar to the third part or body piece. In place of the top piece a third slip of metal pushes aside the type from between the two sliding pieces. Instead of the sliding platform a fixed tube, having an opening of the size and form of the type, is placed to receive the type from the pushing blade, and as this tube is only of the size of the tube without the break, the latter becomes detached as the type enters the tube. The types are corrected and rendered parallel during the rubbing and dressing by cutting the alternate sides of the type successively, holding the side of the type opposite to that to be cut against a true surface or side. In the first cut the edge against which the type is held is moveable, so that it may be accommodated to the inequalities of the type. The second cut is effected by holding the edge made true in the first cut against a fixed edge or surface, and while held firmly against this surface the side to be cut is brought in contact with the cutting tool.

To remove the projection or "knot" commonly formed at the head of the type, a saw is used, the thickness of which somewhat exceeds the thickness or "body" of the type according as the rubbed or dressed sides are cut. The teeth of the saw being in a straight line, the blade is set at a slight angle, so that each tooth may act in succession, and this knot be removed by as many cuts as there are teeth.

The cutting out and adjusting the type for "height to paper," and the "nicking" and "bearding," are all likewise performed by operations similar to those just described. The cutting tools are saws, the transverse section of the teeth of which corresponds to the nick or groove to be cut,

[Printed, 1s. 8d. Drawings.]

A.D. 1859, December 14.—N° 2841,

LAWSON, RAMSAY.—(*Provisional protection only.*)—"Certain improvements in machinery or apparatus for punching patterns or devices upon metallic printing rollers or cylinders."
1, Peculiar arrangement of apparatus, obviating "the moon-

"venience now experienced in self-acting machines with regard to the cylindrical roller being caused to revolve or move before the punch has had time to be removed or lifted from its surface, causing thereby a slight scar or scratch to the roller, which materially invalidates such cylindrical roller." The invention consists in the employment of "two or more levers in connection with the pitcher lever; such levers, the peculiar arrangement of which is passing over and under their centres, will give a sufficient dwell to the cylindrical roller for allowing the punch to be clearly lifted from the surface of the said roller before it partially revolves or becomes moved for a fresh impression."

2. Novel application of a brake, whereby the punch is firmly retained upon the surface of the roller during the action of the hammer upon it.

3. Peculiar arrangement of finger or catch, fixed to the framing of the machine or otherwise, acting upon the ratchet motion for the purpose of adjusting the cylindrical roller before receiving a fresh impression from the punch.

4. Novel employment of a rod or bar supplied with sliding stops for the purpose of acting upon a stud attached to the carriage, such bar or rod being in connection with a lever which will stop or reverse the carriage according to the pattern required.

5. Employment of a lever (attached to the front or hammer shaft) sliding or being worked against a quadrant fixed to the framing, the said quadrant being supplied with moveable studs, such studs and lever, when worked by hand, always allowing the coupling catches for lifting the hammer to enter the adjustable cross head attached to the uprights sufficiently to allow of the uncoupling or release of such hammer, making it necessary, as the cross head is raised or lowered between the uprights when greater or less blow is required to the punch, that the stud upon the quadrant must be adjusted according to the cross head, thereby allowing the operator to release the said hammer without any overstraining the apparatus in connection.

6. The employment of a ring containing a step or split boss, encircling the shaft or stud upon which the pitcher lever moves, such step or split boss being tightened up or brought into closer contact by a set screw, thereby taking all back lash or unevenness from the pitcher lever.

And, lastly, my improvements relate to a peculiar and novel arrangement of machinery for driving and working the machine.

whether by hand or self-acting. Such arrangement consists in placing the working gear for driving metallic roller at one end of the mandril, thereby allowing the other end free for dorfing or replacing a fresh roller for impressions.

[Printed, 4d. No Drawing.]

A.D. 1859, December 28.—N° 2962.

ROSTAING, CHARLES SYLVESTER.—“Improvements in combining and mixing gutta-percha with mineral and vegetable substances, capable of altering its quality in such a manner as to produce hard, resistant, unalterable, and imputrescible compounds, diversely coloured.”

Among the objects to which the invention is applicable are, impressions of types and stereotypes, medals, and duplicates of engraved plates, and to replace engravings on wood, metal, or plaster, for printing purposes, . . . to replace wood, ivory, wax, cloth, and other substances used by photographers, upon which to adopt photographs;” and “cylinders for printers and spinners.”

The invention relates: “1. To a peculiar process of mixing gutta-percha with metallic oxides, such as oxide of zinc in a dense state, more or less pure, or combined chemically with other oxides which act as colouring substances; and also to the use of completely roasted blende, or native sulphuret of zinc, roasted calamine, or carbonate of zinc and zinc grey, or the residuum of the distillation of oxide of zinc in lieu of the pure oxide. 2. To the use of a vegetable or artificial product known as tannin or tannic acid, which produces, when combined with gutta-percha, an imputrescible compound; and also to the use of other vegetable extracts containing tannin as an active principle. 3. To the use of balsams, gum, resins, Venetian turpentine, and concentrated coal tar. 4. To the use of liquid products, such as volatile oils (peppermint, lavender, or others), and chloroform, benzoin, camphine, or sulphuret of carbon, as solvents or admixing agents.”

The gutta-percha, for the purposes above specified, is heated till soft and adhesive, then mixed with colour and a solution of volatile oils or benzoin, the whole being then malaxed until well incorporated.

[Printed, 1s. 4d. Drawings.]

1860.

A.D. 1860, January 11.—N° 76.

GRIMSHAW, O'DONNELL.—"Improved apparatus for registering the number of impressions given to documents or other articles by hand stamps and stamping or printing presses."

The chief object of this invention is to determine approximately the number of letters passed through the Post Office during any given period. The inking-pad of the hand stamp, used to obliterate the stamps or date the letters, is mounted upon a hinged plate or table, and connected with a counting apparatus by means of an arm fitted with a driving click. When therefore the dating or obliterating stamp is pressed down upon the inking pad to receive ink on its surface, it will depress the pad (a spring which bears it up giving way to the pressure), but when this pressure is withdrawn, the pad will rise to its normal position. This movement of the pad is made to work the driving click, and thereby set the counting apparatus in motion; or the table on which the letters are stamped is connected with the counting apparatus so as to obtain the required indication.

When mounted stamps or plungers (worked by a lever or otherwise) are used for obliterating the postage stamps or dating the letters, the counting apparatus is connected with the plunger, so that the descent or rise of the plunger shall impart the required movement to the counting wheels through a rock lever fitted with a driving click or its equivalent.

The invention is applicable also to fly presses and other inking or stamping presses for indicating the number of documents or other articles brought under the action of such press, the motion for working the counting apparatus being in this case taken either from the plunger or from a moving pad or bed.

[Printed, &c. Drawings.]

A.D. 1860, January 14.—N° 106.

SMITH, THOMAS JONES.—"An improved machine for printing in more than one colour at a time."

A metallic framing, the centre part of which is V-shaped, has at its lower part spur wheels working into each other on cranked shafts, one up and the other down alternately. On each side of the V frame is placed a case holding a form, each form being inked with the required colour by means of inking rollers, the sheet

cylinder is placed between these form frames with a wheel affixed to its end, and has a number of teeth around one part of its periphery corresponding in number with those on the end of the form frames, so that when the crank on the left hand with its guide rod has drawn down the frame on the same side, it has made the cylinder revolve about one-third the circumference, having printed one colour, when the crank on the right hand commences pushing upwards the other form frame, which catches the first tooth of the cylinder wheel, and also carries it round, thus printing another colour on the same sheet; the crank rods and frames are connected to each other by suitable chains passing over rollers or grooved wheels affixed thereto, and working in slides on the framing of the machine; upon this principle more than two colours may be printed on the same cylinder.

[Printed, 1s. 2d. Drawings.]

A.D. 1860, January 14.—N° 107.

SMITH, WILLOUGHBY.—"Improvements in transferring designs, and in ornamenting glass and other surfaces; also in the manufacture of slides for magic lanterns."

A print, coloured or otherwise, on paper or other similar material, is coated with collodion; when the collodion is set and hard, the paper is washed off, and the ink or colour will then be found firmly attached to the film of collodion. In ornamenting glass and other surfaces the film of collodion, to which a design has been transferred as above described, is laid together with varnish or cement, on a sheet of glass or on the surface to be ornamented, to which on drying it will firmly adhere. When the film of collodion to which the design has been transferred is to be employed as a slide for a magic lantern, it may either be mounted on glass or between two glasses, or it may be mounted alone in a suitable frame. In the manner above described slides for magic lanterns may be produced, and glass and other surfaces may be ornamented for other uses at a cheap rate.

[Printed, 4d. No Drawing.]

A.D. 1860, January 20.—N° 149.

DE LA FERTÉ, FERDINAND JEAN JOUBERT.—(Partly communicated by Henry Garnier, of Paris.)—"Improvements in reproducing photographic and other pictures, engravings, prints,

" devices, and designs on the surfaces of glass, ceramic and
 " other substances requiring to be fired to fix the same thereon."

The surface of glass or other substance is prepared or coated over with a preparation composed of a salt or chromic acid and saccharine matter, and when dry the prepared surface is placed under the photographic or other picture, engraving, print, device, or design on paper or other material capable of transmitting light, and the same is exposed to light for a time; the surface is then rubbed or coated over with a colouring matter in the state of powder, then heated, washed, dried, and subsequently fired. Several colours may be used in succession and the surface fired again and again.

[Printed, &c. No Drawing.]

A.D. 1860, January 27.—Nº 215.

NEWTON, WILLIAM EDWARD.—(*Communicated by Robert Winslow Davis and Daniel Davis, of Elmira, New York, U.S.*)—

" Improved machinery for printing addresses on newspapers and
 " on wrappers or envelopes; also for punching or indentating
 " wooden or other blocks or plates from which the addresses are
 " to be printed."

The addresses are printed from wooden blocks having indented letters in their faces. The blocks are arranged upon a flexible belt or band mounted on rollers, and made to rotate so as to bring the blocks in succession above the envelope or wrapper to be marked. The lower part of one of the supporting rollers is made flat, so as to form a bed for the block to rest against. A vibrating lever and rod is adapted to work with the endless belt containing the indented wooden blocks, for the purpose of separating such blocks at the printing point, so that each block may deliver its impression without interference from other blocks. The feed wheel is properly adjusted with reference to the bed, so that no block will be allowed to act twice in succession without the feed being operated in the proper manner. The paper to be printed is placed on a bed, to which a vertical motion is given by means of a treadle and rod, so as to bring the paper up against the blocks, which are to be inked by inking-rollers, or other suitable contrivance provided for the purpose.

The invention relates, lastly, to a device for punching or indenting the letters in the blocks from which the addresses are

printed. This contrivance consists principally of a vertical wheel or disc, in the periphery of which are mounted any required number of steel dies. The block or plate to be operated upon is secured on a table, to which a vertical motion is communicated by means of a treadle and rod, so as to bring the block or plate against the steel die of the vertical wheel or disc. By causing this latter to rotate, any die may be brought round ready for action, and the table on which the block or plate is mounted or secured is capable of motion horizontally, so as to bring a fresh part of the block or plate or a fresh block under the die.

[Printed, 8d. Drawings.]

A.D. 1860, February 2.—N° 271.

REYNOLDS, JOHN.—(*Provisional protection only.*)—"An improvement in constructing an endorsing, printing, and stamping press."

"The invention consists of a bar placed horizontally with the bed of the press; at one end of the bar is a handle. The die stem regulated by a spring passes through a slot at right angles to the bar; near the other end of the bar is attached a joint giving a concentric and lateral motion, a concentric for stamping and a lateral motion for inking; at the end of the bar is placed a spring for the purpose of elevating the die end of the bar when out of use. The pads or cushions for inking and receiving the impressions are placed in a position within the range of the die stem; one of the cushions must be placed obliquely to meet the surface of the die, as its motion is not parallel."

[Printed, 4d. No Drawing.]

A.D. 1860, February 16.—N° 421.

SPRYE, COURTENAY.—(*Provisional protection only.*)—"An improved self-feeding apparatus for printing machines."

This invention relates to that part of printing machines in which the blank damped sheets of paper are placed ready to be printed upon. Instead of as "heretofore" advancing such sheets "separately and successively" by hand, this invention is designed for performing this said operation by mechanical means. "I make the bottom of the box containing the paper with a false or moveable bottom, and across the upper part of the said box

" I adjust a roller, across the periphery whereof I place and fix
 " strips, ribs, or fillets of india-rubber, or other similar adhesive
 " or elastic material, and across the opposite end and top part of
 " the box I affix two, three, or more vertical pointed pins or
 " wires; behind each of which, and at a short distance therefrom,
 " a knife is placed, and presses upon the uppermost sheet of
 " paper in the box, so that upon motion being imparted to the
 " aforesaid roller, the uppermost sheet of paper will be pulled,
 " and tear those parts through which the aforesaid pins pass; at
 " the same time the other parts will be cut by the knives, and
 " thus allow the sheet to pass by the pins unobstructed; the
 " aforesaid pins holding the remaining sheets of paper perfectly
 " steady, while the uppermost sheet is being withdrawn; and in
 " this manner, and by these means, each sheet may be successively
 " withdrawn from the box containing them, and advanced into
 " the machine with certainty."

[Printed, *Ad.* No Drawing.]

A.D. 1860, February 18.—N^o 447.

DULOS, PIERRE EDELESTAN STANISLAS.—" Improved process
 " for engraving metallic surfaces either in relief or sunk lines,
 " applicable to copper-plate presses or to ordinary printing-
 " presses."

The process is founded on the fact that if mercury is gently poured over a levelled silver surface, on which lines have been previously drawn with varnish, the mercury will rise on both sides of the lines forming convex surfaces or meniscus, but the varnish lines remain uncovered. The same effect is produced upon a ground glass plate by drawing in the surface lines with some greasy substance, and pouring water over this surface. This property is made use of for obtaining engravings by taking a silver or silvered copper-plate properly prepared, on the surface of which any drawing is either by transfer or otherwise made. If the drawing is made directly on the plate, for instance, with a lithographic pencil, a very thin stratum of either copper or iron is then deposited on the surface by means of a galvanic battery, which metallic deposit will only take place on the parts not marked with the pencil, and these pencil marks are then removed with turpentine. Now, on this plate the white parts of the drawing are covered by a copper or iron stratum, whilst the dark parts or marks of the pencil are in

uncovered silver; if mercury is now poured over the plate, it will adhere only to the silver, and by gently brushing off the superfluous mercury, the previously made pencil-drawing is got in lines standing in relief. A cast is next taken from this plate with plaster, wax, or other suitable material for obtaining a plate for printing in a copper-plate press, which is done by taking an electrotype from the cast.

Another method, which does away with the cast, is by using a metal or alloy, fusible at a low temperature, such as for instance, as Darcet's fusible alloy, to which a small quantity of mercury should be added; when melted, this metal behaves just as the mercury does, and when cold is firm enough to print from.

For obtaining a relief line printing plate, a thin stratum of either iron or copper is first deposited over the silvered plate, and the drawing is made on this stratum, the iron or copper not protected by the pencil lines is then removed, either by means of a galvanic battery or with acids, and the plate is treated by the same process as previously described. The raised lines of the metallic plate intended to be printed are then those of the drawing itself, whilst the sunk lines are represented by the mercury, or better still by the fusible metal employed.

By this process a drawing made upon a silvered plate may be transformed into a relief or into an intaglio plate, so as to be printed, in the first instance, by a typographic, or in the second instance, by a copper-plate press. A lithographic or old copper-plate print or a manuscript may be transformed into a relief or into an intaglio plate by means of the usual transfer processes. A photographic plate may thus be converted into a metallic one for the purpose of printing it, either as a copper-plate or by means of a typographical press.

[Printed, *4d.* No Drawing.]

A.D. 1860, February 23.—N° 485.

DUJARDIN, PIERRE ANTOINE JOSEPH.—“Improvements in
“printing telegraphs.”

The invention consists chiefly of a new letter wheel for the receiving apparatus. It consists of a very thin, light, and flexible metallic dial, around the circumference of which are placed the *alphabetical letters or figures made of a spongy substance, capable of retaining oily ink, so that the wheel does not need an inking*

roller to press upon it as in other printing telegraphs. The message is printed upon a paper ribbon, with which a hammer forces the letter wheel into contact so as to print the letters on the paper. The hammer is provided with flannel which is kept supplied with oily ink. When a letter is printed upon the paper, it is deprived of a small quantity of the ink with which it was saturated, but at the same time a quantity of ink is restored to it by the hammer, so that the letters of the letter wheel are always supplied with ink and ready for making an impression. There are some clockwork movements in the machine, the one giving motion to the letter wheel, the other to the paper ribbon.

[Printed, 10d. Drawings.]

A.D. 1860, February 25.—N^o 515.

ANNABLE, BENJAMIN, and BLENCII, JOHN. — “ Improve-
ments in printing machines, rendering the same more compact,
“ of less bulk, and more available for use.”

The invention consists in imparting the to-and-fro motions to the table carrying the types or printing matter from a horizontal crank or mechanical arrangement, having the effect of a crank and a connecting rod, with guides and guide pulley or slide in direct action with the table, and in having an arrangement which may be applied horizontally, and which may be combined with that just described, for connecting and disconnecting a wheel or wheels, or other mechanism attached to the printing cylinder or cylinders, such wheel or wheels taking into a rack on the table when the cylinder is to be caused to rotate. When the table is drawn under the cylinder or cylinders the arrangement above mentioned takes the wheel or wheels out of gear with the rack, and allows the table to pass free of the cylinder or cylinders, and on the return of the table under the cylinder (or cylinders), this wheel takes into the rack as aforesaid, and turns the cylinder so as to cause it to press upon the type or printing matter, and effect the printing.

[Printed, 1s. Drawings.]

A.D. 1860, February 28.—N^o 543.

ASSER, EDOUARD ISAAC. — “ A process of photographic proofs
“ with printing or autographic ink, for the purpose of either
“ using them as such or placing them back on lithographic stones
“ or on metal.”

An impression is taken in a copying frame on unsized paper steeped in a solution of bichromate of potash, and dried in the dark. "The impression thus obtained, I dissolve in water the bichromate of potash upon which the light has not struck. After perfectly drying the paper bearing the impression I wet it on the back, and place it upon a paper not sized, but damped and stretched upon a glass or other flat and hard object, the impression being uppermost; I then pass over it a roller charged with printing ink, until the impression shows well in black. I then steep the impression in water containing a little nitric or other acid, which will dissolve the bichromate of potash still upon the positive and remove it from the paper. After drying the positive is ready. The theory is as near as may be that of lithography, that is to say, it is based upon the principle that water will not combine with a fatty or oily matter. The sheet of paper not sized may be coated with starch previous to its immersion in the bichromate of potash as much to prevent any picking of the paper as to facilitate the transfer which I will now describe. By passing a roller charged with autographic ink over the impression obtained by bichromate of potash, and treated as above described, I obtain a stereotype suitable for transfer by pressure on to a lithographic stone, from which I draw, by the process known as lithography, autographic prints. This transfer may be made in like manner upon any of the matters which may be used on the same principle for every description of autographic printing, as, for example, zinc or copper, either for a reproduction after what is usually termed zincography; or by the aid of galvano-plastic hollow or in relief."

[Printed, 4d. No Drawing.]

A.D. 1860, March 10.—N^o 650.

YOUNG, JAMES HADDEN.—"Improvements in setting-up (composing) and distributing types."

For distributing, a number of receivers are placed in a frame, and in front of them an endless belt or chain moved by suitable gearing at regulated intervals. "From reservoirs filled with the types to be distributed, I cause types to slide down into recesses in the belt, and the types, by means of a range of little scrapers attached to a bar, are dragged off the belt according as

“ they may happen to be scored by a line or lines, which serve to
“ distinguish one type from the other, and which are cut or cast
“ on the broadest sides of the types. As the types are drawn off
“ the belt, they are made to slide into the receivers, and set in a
“ row by means of a vibrating pusher. The receivers are made of
“ such a form as will allow of their being readily put in connection
“ with the composing machine. The reservoirs I have mentioned
“ have the types pushed out from them in the direction of
“ the length of the type, and in order that the same aperture may
“ serve for thick or thin types, I affix a spring that presses the
“ lower part of the column of types with sufficient power to
“ prevent more than the type actually in contact with the pusher
“ being moved out of the reservoir, and when the pusher recedes
“ the spring is relieved, so that the column of types may descend
“ and fill up the space of the ejected type An attendant
“ having filled the reservoirs with the types to be distributed,
“ motion is given to the handle A single type is pushed out
“ from each of the eight reservoirs; these slide down into the chain
“ filling the divisions in one link; by the next movement the
“ chain moves the distance of one link, and thus presents an
“ empty link to the inclined plane leading from the reservoirs, and
“ at the same time the filled link is placed under the action of the
“ first set of scrapers, eight in number. If the types in the filled
“ links are all of one sort, and happen to have a score in such
“ part of the length that the scrapers can take hold of them, they
“ are dragged off the chain and fall, as already described, from
“ the vibrating plane into the receivers. If, however, the scores
“ of the types do not correspond to the scrapers, the next movement
“ will present these types to a fresh set of scrapers, of which
“ there are six sets, and so on until the types have found their
“ proper places. It will be obvious that as there are only six
“ sets of scrapers the types will only be divided in six degrees,
“ insufficient therefore for a complete distribution, but when they
“ have passed through the machine, the attendant puts them
“ again into the reservoirs, and in so doing he lays them on a
“ different side, so that a nick or score cut on the other side to
“ that previously exposed to the action of the scrapers will now
“ be presented.
“ The reservoirs in the composing machine have hitherto, when
“ viewed by any one sitting in a position to play the keys, been
“ seen to be nearly perpendicular. I now prefer to have a short

"length straight, and curve the remainder either to the left or right. In order still further to adapt the machine to different founts, I place pieces of metal cut to an angle in each reservoir, so that by drawing them out or pushing them in, the lower part of the reservoirs may be diminished or enlarged, and these pieces may be fixed to one or more bars, so that this may be done more expeditiously."

[Printed, 1s. 8d. Drawings.]

A.D. 1860, March 10.—N° 652.

ULLMER, WILLIAM.—"An improvement in printing machines."

The invention consists in obtaining the reciprocating to-and-fro motion of the table carrying the forms from the continuous rotary motion in one direction of the cylinder in cylinder printing machines, or of a shaft or drum provided for the purpose in other printing machines, and made to revolve in a similar manner to the cylinder. "In cylinder printing machines I fix a toothed wheel at one end of the cylinder, which gears into a rack on the table to bring the table forward under the cylinder; the teeth which would continue to gear into the rack are stripped off from one half the breadth of the wheels, so as to clear the rack, while the teeth on the remaining half of the wheel gear into and drive in a contrary direction a similar half-stripped wheel at the back of the cylinder; the teeth on this latter wheel gear into the rack on the table, and cause the table to travel back when they clear it."

The invention is applicable to double as well as single cylinder machines. "For other than cylinder machines I employ a shaft or drum, and furnish it with the arrangement of wheels, flanges, and spring catches, hereinbefore described as applied to the cylinder in cylinder printing machines, and impart rotary motion to the shaft or drum."

[Printed, 10d. Drawings.]

A.D. 1860, March 13.—N° 668.

WRIGHT, JAMES.—(*Communicated by Philander Shaw, of Boston, U.S.*)—"An improved method, means, and process of treating wood, so that it becomes so changed as to be well adapted for uses for which it is naturally unfit."

The object of the invention is to produce from wood a new article of manufacture, very dense, not liable to material change of form from exposure to moisture, and well adapted to resist an extraordinary degree of wear and friction, applicable, among other things, to the manufacture of printing-types. The principle of it consists in submitting wood to the dry heat while confined in a compressed state within a mould subsequent to its preparation with waterproof material or otherwise. The wood, either wholly or partially seasoned, and in suitable pieces, is submitted in a close vessel or boiler to the action of high pressure steam; after the wood is thoroughly penetrated by the steam, a vacuum is formed in the boiler by condensing the steam or otherwise, and waterproof material, with any desired dye or chemical preservative, is then introduced in a hot fluid state into the boiler. The whole is then submitted to high pressure in order to force the waterproof and other matters into the pores of the wood, which is afterwards taken from the boiler and submitted to dry heat to evaporate any watery or volatile matters therein contained. The wood is now placed in suitable moulds, which may be heated and compressed by a screw or other well known means, the moulds being secured by means of bolts, so that the wood cannot recover any of its original bulk; the moulds and the contents are then submitted to the action of dry heat. "Generally I have found about 300° Fah. sufficient, which I find gives to the wood the requisite 'set.'"

[Printed, &c. No Drawing.]

A.D. 1860, April 9.—N° 893.

EIDLITZ, LEOPOLD.—(*Provisional protection only.*)—"Improvements in producing printing and other irregular surfaces by the aid of photography."

This invention consists of an improved method of preparing by the aid of photography the moulds upon which an electro-metallic deposit is to be made, by the use of "a chemical agent having the property of being rendered insoluble in water by exposure to the action of light, and in combination therewith a substance which is more or less expansive under the influence of moisture." The invention is based on the discovery that gelatine, impregnated with bichromate of potash, is differently affected by different degrees of light, "and that this difference can be relied on to occur with such accuracy that when the gelatine

“ is afterwards exposed to the action of moisture, elevations and
“ depressions corresponding exactly in degree with the lights,
“ shadows, middle tints, and their most delicate variations of the
“ photographic negative, will be developed upon it.” The dissolution of the gelatine in the solution of bichromate may be effected in a hot water bath, but all the process is performed in a darkened room, and the mass is preserved for use in a dark place. A film of this mixture being placed in a printing frame under a photographic negative, “ in a short time the surface of the plate
“ will become of a brown colour, when it should be removed and
“ immersed for about five minutes in a bath of cold water. The
“ effect of this will be that where the lights were strongest the
“ gelatine will have been rendered incapable of being expanded
“ by the action of the water, while where the shades were deepest
“ the amount of that expansion will be greatest, and this difference will be on all parts of the plate, just as the plate at each
“ part has been exposed to more or less light. The plate may
“ be now immersed in a solution of sulphate of copper in water
“ being left in this for some little time. It is then to be washed
“ in cold water, and dried until the water is removed from the
“ surface, though below it will still be moist. The mould being
“ thus prepared, is now coated with a metallic substance in order
“ that it may receive the deposit of metal when in the precipitating trough ; and this I effect by pouring upon it a solution
“ of chloride of gold, allowing this to remain for about one
“ minute, then permit the surface to dry again until all visible
“ moisture is removed from it. The plate is now exposed to the
“ fumes of phosphorous dissolved in sulphuric ether, and when
“ again dried, it will be seen to be covered with metallic gold. It
“ is now ready for the deposit of the copper or other metal upon
“ it. When removed from the trough, the glass will readily
“ separate from the gelatine, and that may be washed off, using
“ warm water and a soft brush.

“ If the plate is to be used for letterpress printing a positive
“ photograph should be employed in the printing frame, or a cast
“ in wax may be taken from the gelatine plate, and the metal be
“ deposited upon that. An engraving, manuscript, or letterpress
“ work may be employed in the printing frame instead of the
“ photographic, negative or positive.

[Printed, &c. No Drawing.]

A.D. 1860, April 13.—N° 931.

DUBOIS, LOUIS.—(*Provisional protection only.*)—"Improvements in printing rollers."

The invention relates to a novel mode of forming the surfaces of such rollers, so as to protect them from the effects of the atmosphere, &c. It consists in the employment of caoutchouc as a protecting cover to the composition of which the roller is made. This composition consists of gelatine or strong glue in size and molasses. The gelatinous substance is soaked in water, and melted in a water bath; then, when it is perfectly melted, the molasses is added, and the ingredients having been well mixed, the composition will be ready to pour into the mould, in which must be first placed, as a lining, a tube of caoutchouc of from $\frac{1}{10}$ th to $\frac{1}{4}$ th in. in thickness, according to the purpose for which the rollers are to be used. This tubular lining is secured at top and bottom by means of a spring, and when the tubular lining has been properly arranged, and the mould closed, the melted or liquid composition of gelatine and molasses is poured in.

[Printed, 4d. No Drawing.]

A.D. 1860, April 27.—N° 1073.

LOW, WILLIAM.—(*Provisional protection only.*)—"Improvements in machinery or apparatus for rubbing or finishing printing types."

The principal features of this machinery are:—On the central portion of the main shaft is an eccentric, a horizontal connecting rod from which passes away towards the other end of the apparatus. The outer end of this connecting rod is jointed to one end of a horizontal sliding bar, the outer end of which is formed with a crosshead piece, to which is attached a thin horizontal steel plate. The extreme end of this plate has a transverse recess formed in it, and works over a horizontal guide surface, carried by the stationary framing of the actual rubbing surfaces. This framing consists of a pair of parallel vertical standards, set upon the same base plate, having adjusted within and between them a pair of diagonally-grooved steel rubbing blocks or plates. The faces of these plates are opposed to each other, leaving just so much space between them as is equal to the thickness of the finished type. The grooves in the faces are inclined in reverse directions as regards each other, and their lines of direction also

stand in opposition to each other. The height of the opening between them coincides, or nearly so, with the height of the traversing steel plate already described, as worked by the eccentric or crank. On the front end of this steel plate there is fitted a double finger or horizontal forked piece of metal, in the under notch of which each type to be rubbed is fitted by hand, so that the traverse forward of the plate carries the type onwards between the rubbing surfaces. Alongside the traversing plate, and at the same level, there is fitted upon a pillar stand a horizontal tray, one end of which stands slightly over the traversing plate. This tray is slotted out at its outer end to fit under the finger or traversing fork piece for conveying the types, and when each type is placed in the finger, it rests upon this tray as upon a horizontal guide, whilst it is further guided by one end coming in contact with a vertical edge on the tray. As the traversing plate passes forward, taking with it the type, the latter is pushed onwards until an incline upon the central portion of the finger lifts the outer end of a spring, admitting the type beneath it, and at the proper instant the spring presses the type down over the outer edge of the tray upon the top of the traversing plate itself, and beneath an upper guide piece screwed down above, and which also holds down the tray. The onward revolution of the eccentric now takes the traversing plate back, until the type is allowed to drop over the extreme end of the plate, and rest upon the horizontal guide surface over which the traversing plate works. At this period of the movement the traversing finger is at the end of its back stroke, and a fresh unrudded type is placed in it. Then, as the revolution goes on, this second type is carried forwards as in the case of the former one, whilst the former one is now pushed forward by the end of the traversing plate right through between the two rubbing surfaces of the finishing blocks. This completes the rubbing action on the two broadsides of the type, which drops out at the outer end of the opening between the blocks.

[Printed, 4d. No Drawing.]

A.D. 1860, April 28.—N^o 1081.

SOUTHORN, EDWIN.—“An improvement in, or addition to, “tobacco-pipes, and improvements in the manufacture and ornamentation of tobacco-pipes.”

The improvements in the ornamentation of these articles consist

in the production of designs, inscriptions, or devices upon tobacco-pipes in the following manner:—"Before the pipes are burnt, that is, while they are in their clay state, I transfer thereto the design, inscription, or device printed on tissue paper with suitable colouring matter, as hereinafter explained. I effect the said transfer by moistening the pipes with water, applying the design thereto, and rubbing or burnishing it thereon. The paper is removed, leaving the colouring matter upon the pipes. The said pipes are then burned in the usual manner, by which the design is indelibly fixed thereon. The principal colours I use are blue, brown, and black. For blue, the design, inscription, or device is printed with a mixture of six parts of black oxide of cobalt, one part of nitrate of soda, mixed with oil. For brown, I employ peroxide of iron, and for black, oxide of manganese. For other colours I use the metallic oxides or other colouring matters which produce the desired tint."

[Printed, 10d. Drawings.]

A.D. 1860, May 19.—N° 1228.

NISSEN, HENRY NICHOLAS.—"Improvements in the preparation of paper, in order to prevent the extraction or alteration of writing thereon without detection."

The invention consists: 1. In preparing a sensitive paper for writing or printing upon, by the aid of a preparation of iron, together with ammonia, prussiate of potass and chlorine, either when in pulp or when in process of being sized; and 2. Impressing by printing, or otherwise transferring to the surface on one or both sides of such sensitive paper, patterns, marks, or devices transferred or printed with a preparation of galls and iron.

[Printed, 4d. No Drawing.]

A.D. 1860, May 29.—N° 1299.

WALLIS, GEORGE.—"New or improved methods of preparing drawings, writings, designs, prints, or impressions of engravings, and photographs for the purpose of impressing or engraving the same in or upon metallic surfaces, and thereby producing printing or embossing surfaces or ornamental metallic surfaces, for such purposes as the same are or may be applicable to: also

“ new or improved machinery to be employed in the said impressing or engraving.”

The invention consists: 1. Of a method of preparing drawings, &c., so as to render them suitable to be impressed or engraved in or upon metallic surfaces. This is effected by the use of compositions containing finely pulverized hard granular substances, and the admixture therewith of soft mineral or vegetable substances, such as Paris white, and carbonate of oxide of lead, together with glutinous substances, as a fluid drawing material, which when dry forms a substance sufficiently hard to impress metallic substances when subjected to pressure. The said metallic surfaces when so impressed or engraved being capable of being printed from in the manner of copper-plates or wood blocks, or used for impressing or embossing metallic or other plates or surfaces for the purpose of ornamenting the same.

2. Use of bichromate of ammonia, or other soluble chromic salt, as a fixing constituent in compositions to be used in preparing drawings, &c., to be afterwards impressed or engraved upon metallic surfaces.

3. Production of a tint upon a metal surface when impressed with paper, &c., upon which a design has been produced, and the treatment thereof with scraper and burnisher in the manner of a mezzotint engraving for the production of effects of light and shade when printed from in the manner of a copper-plate engraving.

4. Methods of re-damping drawings, &c., executed with a drawing material of the kind hereinbefore described for the purpose of supplementing the same with granular powders.

5. General arrangement of machinery for the purpose of impressing, embossing, and engraving.

[Printed, 1s. Drawings.]

A.D. 1860, June 6.—N^o 1385.

HUGHES, EDWARD THOMAS.—(*Communicated by Joseph Corduan, of New York, U. S.*)—“ Improvements in coating or plating the faces of printing type and stereotype plates.”

These improvements consist in coating type or stereotype plates made of ordinary type metal, with other compound metals harder than copper or type metal, such as brass, or an alloy of copper, zinc and iron, or an alloy known as a key metal, or an alloy of

tin and zinc. " For this purpose I prepare chemical solutions to
 " form part of the electrical circuit connecting the type to be
 " coated with a pole or node of the same compound metal which
 " is to be deposited on the type. For the node, I make use either
 " of the vat in which the solution is held, or a separate piece of
 " metal with which the types are connected within the solution.

" To coat type metal with brass, I use two solutions, one a
 " saturated solution of blue vitriol and water, and caustic potash
 " dissolved in water, from which I obtain a precipitate known
 " as black oxide of copper. I afterwards mix in a solution
 " of cyanide of potassium and water as much of this black
 " oxide of copper as it will dissolve; the second solution I com-
 " pose of cyanide of potassium and water, to which I apply heat,
 " and then stir in as much white oxide of zinc as the solution
 " will hold. I mix these two solutions together, and use the
 " compound as part of the electrical circuit in connection with a
 " vat or node of brass. As a depositing agent I make use of
 " electro-magnetism. I vary the proportionate quantities of these
 " two solutions according to the hardness of the brass which it is
 " desirable to deposit; an excess of the zinc solution increases the
 " hardness, whereas an excess of copper solution diminishes it.
 " I prepare the type for this process by placing them in suitable
 " frames, or by fastening them by wires, the faces of the whole
 " offering a completely even surface, the conducting wire con-
 " nected with the type being at its other end attached to the zinc
 " or negative pole of the battery, whilst the positive or platinum
 " pole is by a similar wire connected with the brass vat, or with a
 " brass plate.

" To coat type with an alloy of copper, zinc, and iron, I make
 " use of a solution of prussiate of iron one part, white oxide of
 " zinc one part, and black oxide of copper one part, mixed and
 " dissolved by heat in a solution of cyanide of potassium and
 " water; for the node I employ copper, iron, and zinc, in equal
 " parts, and as a depositing agent either batteries or magnetic
 " machines. To coat type with an alloy known as key metal,
 " in a heated solution of cyanide of potassium I mix equal parts
 " of black oxide of copper and chloride of tin, I employ as a
 " node equal parts of copper and tin, and for depositing agents
 " either batteries or a machine. To coat type with an alloy of tin
 " and zinc, I stir in a hot saturated solution of cyanide of potas-
 " sium, equal parts of chloride of tin and white oxide of zinc.

" as much as the solution will hold, the node being formed of
 " equal parts of tin and zinc, and the depositing agents employed
 " either a battery or a machine."

[Printed, 4d. No Drawing.]

A.D. 1860, June 14.—N° 1453.

DELAURETIS, GAETANO.—(*Provisional protection only.*)—

" An improvement in preventing and detecting forgery or alteration
 " of figures in cheques, bank-notes, drafts, bills of exchange,
 " promissory notes, and other monetary bills."

" The invention consists in so printing on the bill a progressive
 series of numbers or letters, or other conventional signs, that they
 represent a progressive series of sums of money, and that any of
 them can be either taken off or defaced by an indelible mark. The
 improvement is as follows:—" When a sum is written on the bill,
 " the corresponding number, letter, or sign is either taken off or
 " defaced, as above said, and thus the absence or defacement of
 " such number, letter, or sign indicates the sum originally written
 " on the bill."

[Printed, 4d. No Drawing.]

A.D. 1860, June 16.—N° 1469.

PAVYER, BENJAMIN.—(*Communicated by James Gabriel Pavyer,
 of St. Louis, U. S.*)—(*Provisional protection only.*)—" Certain new
 " or improved machinery for 'rubbing' type."

" The invention consists in the employment of endless belts or
 their equivalents, in conjunction with stones or other substances,
 and in connecting together the frames which carry the stones by
 means of yielding joints or connections, in order that type of
 varying sizes may pass between the endless belts and the stones.

" The machinery for this purpose is described in detail. The
 machine is driven by the application of power to a fly-wheel or
 crank upon the shaft of which a cog-wheel is fixed, which takes
 into a pinion and imparts motion to the first belt; the same
 pinion also gives motion to the belt on the hinged frame, by gear-
 ing into another pinion on the roller over which the said belt is
 stretched. The second-mentioned belt is put in motion through
 cog-wheels, which receive their motion from a wheel on the main

shaft, and which also take into a pinion on a shaft over which the said belt is stretched.

[Printed, 4d. No Drawing.]

A.D. 1860, June 18.—N° 1476.

KERSHAW, THOMAS.—"Improvements in apparatus for imitating various fancy woods, marbles, granites, and stencillings."

These relate more particularly to the cylinder described in Barber's Patent (11 April 1846, N° 10,880, O. S.) "For the better imitating of different woods and marbles by the cylinder, certain parts on the carved surface of the leather on the cylinder are ground down for the purpose of imitating the half lights, which, by this means, are done at the same time. For the imitation of stencillings, the surface of the leather cylinder is cut or engraved to any desired pattern, the design being in relief, and the wall or part to be operated upon covered with colour, when on running it over with the engraved leather cylinder the design or relief will take up the colour in the exact shape or form as engraved, or the colour may be put on by the cylinder. The roller is supported and held by a handle fastened to a frame which embraces the cylinder, and is attached thereto by a screw, pin, or other similar contrivance, passing through the axis of the cylinder; more command is thus obtained over the cylinder than by the ordinary method of a simple axis held by both hands.

"For the imitation of marble upon painted deal, stone, cement, slate, iron, zinc, paper, glass, or any other surface. The leather being cut to imitate the various veins natural to the marbles, in most cases the colour is laid on the painted or other surface, several tints for each marble; the cylinder is then passed over, the projecting surfaces of which take up the colour according to the design cut thereon. In some marbles the colour is put on the cylinder, which transfers it on to the surface to be marbled; and when this is done, the colour or colours are blended together with a softener, as commonly used for that purpose."

[Printed, 8d. Drawings.]

A.D. 1860, June 22.—N° 1524.

NEWTON, WILLIAM EDWARD.—(Communicated by Jean Baptiste Huguet, of Paris.)—(Provisional protection only.)—"Improvements in lithographic printing presses."

The invention consists “in a peculiar arrangement or construction of parts for working the fingers of the cylinder, and in the employment of small moveable supports or standards to receive the damping and other rollers. The fingers or grippers are constructed somewhat on the principle of bell-crank levers, and are mounted on a rod or shaft, which, with the fingers or grippers, is placed in a recess cut out of or made in the printing cylinder. The fingers or grippers are opened and closed at the proper time, so as take hold of the paper by causing their tail ends to be brought against studs, or wipers, or cam pieces, as the impression cylinder rotates. This cylinder is covered with a flexible covering, made of some suitable material strained over the cylinder, and secured at each end to rods, one or both of which may be made to turn on their axes so as to tighten the covering on the cylinder. The damping rollers are mounted in standards, which are capable of being lifted above the plane of the printing surface when they are not required to act. The standards are for this purpose attached to or worked by one end of a vibrating lever, which is acted on by a cam on the cylinder shaft or main shaft of the machine, or by some other suitable part of the mechanism. The lithographic stone or printing surface, and also the distributing table, are fixed on a reciprocating carriage, which moves to and fro under the printing cylinder. The press is so contrived and arranged as to admit of its being used not only for printing drawings and ordinary lithographs, but also for printing fabrics, silk handkerchiefs, paper hangings, and other articles, which are ornamented with running or continuous patterns from end to end of the piece. Suppose, then, that the machine when in its complete state is arranged to print in the usual manner, it will be only necessary in order to arrange it to print continuous lengths, to remove the fingers, and take away a simple bar or rod which carries a small toothed wheel, whereby some of the parts are worked. The printing cylinder will of course have an intermittent motion, and must of course stop while the necessary operations, such as sponging and inking, are being performed.”

[Printed, &c. Drawing.]

A.D. 1860, July 9.—N^o 1645.

TAYLOR, JOHN INGHAM, and BUTLER, GEORGE.—“Improvements in apparatus for stamping, printing, and embossing.”

The invention consists of a self-inking hand press for stamping and printing, suitable also for embossing. The spindle attached to the die or printing surface slides in the pedestal, and is supported by a spring, which raises it when the pressure is removed. At the same time the stamping surface is replenished with ink or colour from a pad or reservoir on a lever hung on a pivot, and in connection with the spindle in such a manner that when the spindle is raised the ink pad is pressed upon the die, and removed aside when the die descends upon the table of the press. The spring may be helical and placed around the spindle, or it may be of any other convenient form, as that of a detent spring, and applied to the pad lever. The pad may be so hung as when removed from the die to renew its supply of ink or colour from a reserve; or a fountain reservoir covered with flexible material may be used, in which by its pressing on the die the ink or colour will be forced against the die through the cover; and this fountain may be inverted when the die is raised, in order to keep the surface moist. This apparatus may be placed and worked in any position. Two or more dies or printing surfaces may be fitted to one pedestal or frame, to be worked, together or independently, by direct pressure or by means of levers. The apparatus is adapted by disconnecting the self-inking portions for embossing operations.

[Printed, 8d. Drawings.]

A.D. 1860, July 19.—N^o 1747.

SHAW, ISAAC BROAD, and SHAW, JAMES EDMUND.—(*Provisional protection only.*)—"Improvements in the ornamentation or "decoration of earthenware, porcelain, glass, and other articles, "and in producing the designs, figures, patterns, and roller "moulds used in such process, such roller moulds being also "applicable for the casting of rollers used in typographic and "lithographic printing."

1. As regards the production of the designs, &c., used in the process, a piece of laminated lead, on which is traced the required design, is worked up with a plumbago style or pencil into relief, but having a square or flat face from which a plaster cast is taken. The design may be traced in wax, soap, or clay, or engraved in wood, "or otherwise produced, the object sought to be attained "being a raised surface similar to those used in letterpress

"printing." 2. "Having obtained the design or patterns in a raised surface, we . . . take the design or pattern and stamp or press it into clay or any other suitable plastic material; we then take a composition of glue, treacle, salt, and corrosive sublimate, or any other suitable elastic material, such as gutta-percha or india-rubber, and after liquifying the same, we pour it into and upon the design as pressed in the clay, by which means we obtain the designs in a fine elastic state." 3. Producing patterns with the elastic material in a different way. "We take two sheets of glass, and having finely oiled the surfaces thereof, we place them almost in contact, leaving about one quarter of an inch between them, and having the before-mentioned composition ready in a liquid state, we carefully pour it between the said sheets of glass, and then allow it to cool, after which it is carefully taken out and cut with dies or any other suitable way into any desired design or pattern." 4. As regards the mould for casting the rollers required in the process, and which is also applicable for casting rollers for letterpress and other printing. This mould is made of earthenware in two parts, but when firmly joined gives a beautifully circular roller with a highly smooth surface. 5. As regards the method or way of using the above roller patterns and designs in ornamenting earthenware and other articles. "Having the designs or patterns produced as before-mentioned in the elastic composition, they are to be affixed to suitable handles, and are then ready for use as follows:—A quantity of colour, or gold intended to be used, is finely distributed by means of a roller produced out of a mould as before mentioned on a flat surface of wood or 'pitcher.' The face of the designs or patterns is then dabbed on the aforesaid roller or slab, which thereby imparts a certain quantity of colour or gold to the surfaces of the said patterns, when they are then carefully put or pressed against the articles to be ornamented, which thereby receive a perfect fac simile of the designs, patterns, or figures, as desired."

[Printed, 4d. No Drawing.]

A.D. 1860, July 20.—N^o 1763.

POULTER, HENRY WILLIAM.—"Improvements in the arrangement and construction of printers' composing cases, and in the frames used therewith."

The object of the improvements is, first, to diminish the number of compartments or "boxes" in the "cases," and thereby to reduce the distance the operator's hand is required to traverse in picking up the types and spacing out the lines. "For this purpose I omit some of the compartments or 'boxes,' namely, those devoted to the reception of accented vowels, and obtain a better disposition of other of the 'boxes' or compartments; and I also form some of the partitions for the 'boxes' of zinc or other suitable metal for the purpose of giving more room in such 'boxes;' and I sometimes hinge what are commonly called the 'upper' and 'lower' 'cases' together, though this is not absolutely necessary, but in either case the whole is, in fact, reduced to one 'case.' I also arrange some of the 'boxes,' or compartments of 'cases,' for small-sized types with false bottoms of sheet india-rubber, or otherwise elastic, in such manner that when fully loaded with type they will sink to the bottom of the 'case,' and then gradually rise as the type is removed, bringing the remainder to the surface."

[Printed, 1s. Drawings.]

A.D. 1860, July 21.—No 1769.

YOUNG, JAMES HADDEN. — "Improvements in setting-up (composing) and distributing type."

"In order to diminish the power required from the finger in striking the keys of the composing machine, I have devised the following apparatus:—I cause an endless belt to rotate by means of a treadle . . . in front of the keys of the composing machine. This belt holds or sustains sliding levers or pins, which on being projected cause the keys to be depressed. Now it will be readily understood that by placing another set of keys to move forward said levers as required, the finger will only require to overcome their friction, while the power that moves the hand will overcome the resistance offered by the type in issuing from the reservoir. This apparatus may be fitted to any composing machine in which keys are used, or it may be made to act directly on the mechanism that causes the types to issue from the reservoirs in which they are held. The action of the apparatus is as follows:—The belt being put in motion from left to right by any appropriate means, when one of the auxiliary keys is struck, it sends forward, by means of its belt crank, the

" pin that happens to be opposite to it; the end of the pin running over the incline, it is sent back to its original position by the horizontal incline on the same key. The belt should be driven at such a speed that the pins will by the rotation of the belt be carried through a space greater than the width of one key of the composing machine during the time that the person playing on the keys can pass from one key to another. In order that the player of the composing machine may readily find his place in a copy, when obliged to take his eyes off it, I have provided a sliding reading desk which can be raised a regulated distance when required either by striking a pedal with the foot or a key with the finger, and across the copy affixed to this desk I place guiding lines. Hitherto I have constructed the incline plane of metal; I now make it wholly or partly of glass; for this purpose I cut out flat plates of glass so as to get the required form of groove or channel by screwing or otherwise fastening them down to a bed plate of metal or glass; pins are made to project so as to allow of the placing of glass or metal covering plates, which may be readily removed, or the plates may be secured to hinges; these covering plates do not entirely cover the channels or grooves, but are slightly separated to allow of a turned type to slide between them. To facilitate the descent of the types moving by their own gravity, I use gas, or the circulation of steam or water in pipes, or any other suitable means to heat such parts of the composing machine as the types come in contact with, when moving by their own gravity, so that these parts may be kept at a higher temperature than the surrounding atmosphere. This heating will be found equally useful in the distributing machine. . . . In a former Patent I described galleys with separations to hold lines of types as they are set up. By my present arrangement the types are set up as they issue from the inclined plane in a long line, and an attendant slips a line at intervals into the galley, which is raised or lowered by means of a screw. When filled the galley may be carried to the justifying box; or this box may be placed alongside, so that the justifier may be drawing types from the same galley that the machine is filling, the pieces in connection with the justifying box and the galley on the one hand, or of the receiver and the galley on the other, being provided with hinges, so as to suit the varying level, and the line may be made long enough to allow of an assistant to

“ correct the matter set up. In a former Patent I described a
 “ distributing machine in which the types were scored, so as to
 “ effect their separation by such scores being placed in different
 “ positions. Instead of scores, I find it useful sometimes to cut
 “ nicks on the edges of the types, and the types instead of lying
 “ flat may be partially turned on edge, so that the scraper passes
 “ on the edge of the types.

“ In order also to facilitate the action of the scrapers, I cause
 “ the chain that conveys the types to pass under a thin metal
 “ cover; in this manner the scrapers need not touch the type
 “ until quite close to the scores.”

[Printed, 1s. 6d. Drawings.]

A.D. 1860, August 7.—N^o 1905.

DAVIES, CHARLES LANGDON. — “ Improved apparatus for
 “ printing and embossing.”

The invention relates principally to address and show-cards. The cards are placed one over another in a box just sufficient to contain them. This box is mounted so that the lowest card when projected from it shall enter between a pair of small cylinders by which the printing is performed. For printing alone one of these cylinders is plain, while the other has a device engraved in relief on its surface. For address or business cards these cylinders may be very small, it being simply necessary that the circumference should a little exceed the length of the card to be operated on. If used for printing only the ink is applied to the relief surface by rollers driven by contact therewith, and which are simply of the length sufficient to embrace the surface to be printed. The inking roller is fed by other rollers from a reservoir of ink or colour in the ordinary manner of inking rollers in printing machines. A plain cylinder is placed immediately below the printing cylinder, which is pressed down upon it by springs or screws, by which it may be adjusted to the thickness of substance to be passed between them. The cards to be printed are of a sufficient width to cover the relief surface, as also some portion of the marginal ends of the printing cylinder, by contact with which and between such marginal ends and plain cylinder the card is nipped and drawn through the machine. In order to feed up the cards one at a time, a slide is made to traverse lengthways in the bottom of the card box, and on which the cards fall in succession, they are propelled

forwards by the contact of a step or projection on this slide until they pass between the cylinders, which being worked at same time, take hold of the card and carry it through between them, and perform the printing or embossing operation. Motion is given to the feeding slide by the printing cylinder, projections on which take hold of rods connected with the feeding slide, advance it a certain distance, and then release it, when it is carried back in readiness for the succeeding operation by springs, weights, or otherwise. The printing surface may be produced by engraving, or it may be a stereotype or cast of type metal, bent round to form a cylindrical printing surface, such as gutta-percha for instance. If this apparatus is to be used for embossing, the upper cylinder must be engraved and sunk to receive the relief of the other cylinder.

[Printed, 8d. Drawings.]

A.D. 1860, August 8.—N° 1922.

FLOUNDERS, CHARLES FONTAYNE.—“An improvement or
“improvements in duplicating photographic impressions, and also
“for certain machinery for the same.”

The invention consists in confining in a dark chamber or space, or camera obscura, the photographic material prepared to receive the impressions, and causing by mechanical means every part of its surface to traverse an aperture through which the light or photographic impression is received, this light being admitted and shut off by a perforated straight sliding, or circular revolving disk having a similar opening, this moving disk being so constructed as always to move at a uniform rate, which rate can be made faster or slower by means of springs or otherwise as desired. The rebound or momentum of this slide or rotating disk is overcome by spring checks. A condensing lens is applied when required to increase or diminish the intensity or quantity of light necessary to produce the pictures with certainty or rapidity.

[Printed, 8d. Drawings.]

A.D. 1860, September 8.—N° 2180.

WOOD, JAMES.—“Improvements in stereotyping apparatus.”

“Heretofore, in producing stereotype blocks or plates, it has
“been usual to cast the same of a width exceeding considerably
“that of the face of the type. This has been done because
“otherwise difficulty would be experienced in making the block

“ or plate perfect at its edges, as the fluid metal on being poured into the metal mould becomes chilled by the sides thereof, and will not then run up perfectly into the adjacent letters. The additional width given to the block or plates for this purpose is in many cases very inconvenient, and it is especially so in newspaper work, where the stereotyping is usually done column by column, as then, in order that the columns may fit properly side by side, it becomes necessary to remove accurately this additional width by means of a planing or other tool.” By this invention, a stereotype block or plate may be cast of the exact width required, whilst at the same time the letters at the edges of the said block or plate are produced perfectly and sharply. This is effected by so forming the mould that the block or plate when cast may have a projecting edge or fringe running along the upper edge of each side. The object of this edge or fringe is to prevent the injurious effect before mentioned of the cold metal sides of the mould. The edge or fringe is very readily removed after the block or plate is cast.

A jobbing casting gauge, for use in the ordinary casting frame or moulding box, is constructed by making the side bar traverse backwards and forwards on the tail piece or bottom bar.

Moulding presses are constructed with a hollow boxed form, base or sole plate forming the bed upon which the type form is placed for the purpose of giving an impression to the paper matrix, and heat applied in combination therewith.

Core gauges or casting moulds for casting “ news columns are constructed type high, entirely of metal, and in several parts mounted upon a bottom plate or back of metal accurately planed and finished, upon which the back of the paper matrix is laid, and the side bars by which the stereotype casting when made “ is ” bounded are framed together, and capable of extension or closing by means of screws, and are made so as to fold down upon the paper matrix and hold it accurately in position.

[Printed, 1s. 4d. Drawings.]

A.D. 1860, September 14.—N^o 2232.

GEDDE, WILLIAM EDWARD.—(*Communicated by Jules Bénèche, of Elbauf, France.*)—(*Provisional protection only.*)—“ Improvements in ornamenting glass with coloured designs or pictures, in “ imitation of stained or painted glass.”

The invention consists in the following processes :—" Produce upon a sheet of transparent and colourless gelatinous matter, either by lithography, or, if necessary, with the pencil or brush, or by photography, any picture or design; spread this sheet (coated with some transparent and colourless resinous preparation) upon a sheet of glass of equal dimensions, then apply a new surface, composed of different pieces of sheets of coloured gelatine, cut in accordance with the contour or outline of the picture or design, and of the colours required by the subject to be produced. When this last process is complete, the surface is coated with the same resinous preparation as first used, and covered with a second glass of the same size as the first. The whole is then placed in a press, and shortly forms a solid and unalterable body. Lithography, photography, and the brush from the shade, the gelatine produces the tints and colours as brilliant and as well blended as those of stained glass."

[Printed, 4d. No Drawing.]

A.D. 1860, September 15.—N^o 2249.

BARNWELL, STEPHEN, and ROLLASON, ALEXANDER.—

"Improvements in combining and mixing certain solutions of pyroxylyene with animal, mineral, and vegetable substances, by which its quality is altered in such manner as to produce hard, resistant, adhesive, plastic, or resilient compounds and articles unalterable in their nature and varied in colour, which said compounds, in a state of solution, may also be advantageously employed as paints or varnish."

The invention refers to the manufacture of peculiar solutions of pyroxylyene, and its relation to the present series consists in the fact that "these compounds of pyroxylyene in a state of solution may be applied" as "an excellent coating or dressing for all descriptions of textile woven fabrics, oils, or painted cloths, silks, or paper," and "as a varnish for paper prints, drawings," &c. The substance in its more solid form is useful "for bookbinders' uses, both as a cement and also as a material for the covers of books." The mode of preparing this pyroxylyene for these purposes consists in dissolving that substance in any of its known solvents, and adding thereto animal, vegetable, or mineral oils. To this may be added gums or resins and oxidizable salts, such as oxide of manganese or oxide of copper, as colouring agents.

Other mineral substances, such as chloride of calceum, and iodide of cadmium, are useful when articles of an uninflamable nature are to be produced.

[Printed, &c. No Drawing.]

A.D. 1860, September 21.—N° 2309.

NEWTON, ALFRED VINCENT.—(*Communicated by De Witt Clinton Hitchcock, Edwin Blake Larcher, Edwin Metcalf Larcher, James Smith Talbot, and William Scudder Tisdale, U.S.*)—"An improved mode of producing relief printing plates, blocks, and cylinders."

The object of this invention is to produce printing surfaces in relief, by delineating on a prepared surface of chalk or other suitable material, lines, figures, or devices with fluid silex, or other suitable liquified material, that will harden the chalk or other material employed by its absorption in the same. The soft material between and outside the hardened lines is then brushed or rubbed, in order to remove such soft parts, leaving the hardened lines in relief; the entire plate or block is then hardened, and a design in relief lines will be produced, which will resemble in its general features the lines of a woodcut from which printed impressions can be taken.

[Printed, &c. Drawings.]

A.D. 1860, September 24.—N° 2319.

GASKILL, EDWIN.—(*Provisional protection only.*)—"The application of a traversing set-off sheet to gripper printing machines of all kinds."

In the case of French machines, and all cylinders of small diameter, the invention is applied, by having fixed above the machine, or in some other convenient position, a roller or rollers having guiding wheels on them, or one of them, and passing strips of paper, blankets, or other material the width of the printed matter round the aforesaid roller or rollers, and around the printing cylinder; the extremities of the set-off sheets or blankets are to be joined, forming endless bands, which, in the working of the machine, continually change their position. The grippers are made to work in the heads of the pages, and are formed in such a manner that the tapes can run through them, and so be out of the way of the traversing set-off sheet.

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In the case of desideratum machines and cylinders of large diameter, the invention is applied by passing a set-off sheet of paper, blanket, or other material, having the extremities joined so as to make it endless, round the cylinder and inside the grippers; round a bar fixed in the cylinder, or round the axle of the cylinder, this sheet traverses when the grippers open in the ordinary working of the machine; a lateral motion is also given to the sheet by means of a slight spring or other contrivance whereby the sheet is guided gradually from one side of the machine to the other and back again.

Another application of the invention is as follows:—A long set-off sheet of paper, blanket, or other material has one end fastened to a roller fixed inside the cylinder, the other end is passed round the printing cylinder under the grippers, and round another roller also fixed in the cylinder; when the grippers open, a motion is communicated to the rollers, by which the set-off sheet which was round on the one roller has been wound on to the other roller, the motion is reversed, and the sheet travels back.

[Printed, 6d. Drawings.]

A.D. 1860, September 28.—N^o 2352.

SHEPPARD, AUGUSTUS FREDERICK: — (*Communicated by E. Muggeridge, New York, U.S.*)—"An improved method of, "and apparatus for, plate printing."

The invention relates to an improvement in printing from plates engraved in intaglio. "Hitherto in effecting this kind of "printing the whole face of the plate requires to be covered or "smeared over with ink, so that all the sunken portions may be "filled, the surplus ink is then wiped clean off the surface, and "in this state the impression is taken; the same operation of "wiping is required for each separate impression." The present invention consists in the employment of a method and means by which the necessity of wiping or cleaning the plate before each impression is avoided. For this purpose an ink of a fluid nature is employed. It is injected into the recesses or sunken portions of the plate from underneath. "To effect this, I attach to an "ordinary printing press two ink reservoirs, one placed above the "level of the plate to be printed from, and the other below. By "means of pipes, I establish a circuit of communication between "these. The block upon which the plate is placed lies within

“ this circuit, and is so formed as to receive and distribute the
 “ ink over its surface in a series of channels diverging from a
 “ central mouth in its circuit from the one reservoir to the other.
 “ The apparatus is arranged so that at the instant the paper is
 “ pressed upon the surface of the plate a valve in the circuit pipe
 “ is opened, and the ink falling downward from the upper reser-
 “ voir is injected by the hydrostatic pressure through the dis-
 “ tributing channels of the bearing block into the prepared
 “ underside of the plate, and from thence into the sunken portions
 “ of the upper face into which the paper is then being pressed,
 “ and the impression taken. The succeeding motion of the
 “ press, which relieves the paper, shuts the aforesaid valve, and at
 “ the same instant actuates a piston, which withdraws the surplus
 “ ink from the bottom portion of the plate into the bottom
 “ reservoir, from which it is forced up to the top one again, and
 “ the foregoing operation repeated.”

[Printed, &c. Drawings.]

A.D. 1860, September 28.—N^o 2356.

NEWTON, ALFRED VINCENT. — (*Communicated by William Harrison Oakes, New York, U.S.*)—(*Provisional protection only.*)
 —“ An improvement in the mode of obtaining impressions from
 “ printing plates.”

Ink of a fluid nature is injected into the recesses or sunken portions of the plate through perforations made in the plate, the ink being injected into the plate with sufficient force, and while the paper or other substance to receive the impressions is being pressed upon its face. In the framing of the press, and directly underneath the platten, is a fixed block, the upper surface of which is provided with diverging grooves communicating with a tube, which passes out through the side of the block, and is in connection with a pipe that branches off to elevated ink reservoirs and a pump; placed on the grooved block is a bed on which the plate to be printed from rests. This bed has its upper surface grooved longitudinally and transversely, the grooves intersecting each other, and forming sunken passages over nearly its entire surface. The under surface of the bed is grooved in zig-zag form, and the bed is perforated with holes which communicate with the zig-zag grooves, and these grooves communicate with the grooves at the upper surface of the block.

The plate to be printed from, say, a music plate, must have one hole at least in each isolated sunken portion of the plate. When placed on the bed there is a direct communication between the sunken portions in the plate and the ink-supply tubes. The reservoirs being filled with quite fluid ink, and the plate covered with a sheet of paper or other substance to receive the impression, the platten is brought down, a valve in a pipe leading from the ink reservoir is opened, when the ink will flow down and pass into the sunken portions of the plate, and be forced against the sheet covering the plate with a pressure due to the height of the reservoir above the plate. The valve in the pipe now closes, and the piston of the pump rises and draws the ink from the recesses in the plate. The platten then rises, and the printed sheet is removed and replaced by another sheet, when the operation is repeated. As the platten again descends, the plunger of the pump also descends, and forces back the ink which it drew from the plate into the raised reservoir. At the commencement of the downward movement of the platten, a valve is opened, which forms a communication between the grooved block and the second reservoir. The employment of the second reservoir is essential, as it ensures a quick operation of the press, saving the time which would be otherwise consumed in the passage of the ink from the first reservoir after the descent of the platten.

[Printed, 4d. No Drawing.]

A.D. 1860, October 5.—N° 2408.

TUCKETT, CHARLES, jun.—“An improved method of ornamenting book-covers, which is also applicable to other purposes.”

The invention consists in printing or drawing designs on the same with acids, alkalies, oxides, salts, metallic salts, or neutral salts, or otherwise applying various dyes in combination with the acids, &c., so as to produce any shade or shades of colour required, thereby enabling the artist to produce perfect harmony of colour or tint in the design or drawing without injury to the surface or wear of the leather, and without inlaying the colours as formerly practised. To effect this, “I take uncoloured or white calf leather, and after tracing or drawing the design thereon, I pick out or pencil in with suitable chemicals, such as sulphate of iron, for producing any shade from black to light grey, and also any

“ shades of brown are produced either by salts of tartar alone, or in
 “ combination with sulphate of iron, or by other chemical means.
 “ I also take Morocco, calf, or other leather used for the covering
 “ of books or other articles, being first dyed in the usual way—
 “ say a dark chocolate colour—and after the design has been traced
 “ thereon, it is then to be picked out or pencilled in with suitable
 “ chemicals—say oxalic acid, or other acids, or metallic salts, which
 “ will produce suitable tints as desired.”

[Printed, &c. No Drawing.]

A.D. 1860, October 22.—N^o 2570.

RUSSELL, CHARLES GOURLEY.—“ An improved method of,
 “ and apparatus for, facilitating the operation of certain kinds of
 “ printing from engraved plates, cylinders, lithographic stones,
 “ letterpress, blocks, and other like surfaces.”

The invention relates chiefly to the class of work known as
 “ overlay ” printing, and is generally used in the printing of bill-
 headings, &c., where only a portion of the sheets are printed upon.
 “ Overlay printing is at present performed by laying down by
 “ hand each single sheet in succession one after the other upon
 “ the surface to be printed from, which has to be done with great
 “ care to insure the impression being taken on the proper position
 “ on the sheets, and which operation takes up a considerable
 “ portion of the printer's time.” The present invention consists :
 1. In laying and securing the required number of sheets of paper
 to be used at one operation in the proper position, previous to
 being laid on to the surface to be printed from, and which may
 be done by means of a vertical moveable guide plate graduated by
 lines in the ordinary way, or by means of vertical serrated grooves
 cut in the side thereof, and having at one end thereof, and at a
 right angle to the graduated surface, a vertical stop plate, a board
 being laid down within the right angle formed by the guide and
 stop plate. The operator commences to lay down the sheets to be
 printed in sets one above the other, until he finds they begin to
 rise in the middle, so as to make it inconvenient to continue the
 operation ; he then takes two wedge-shaped blocks of vulcanized
 india-rubber or other suitable material, and lays one on each end
 of the sheets with their thin ends towards each other ; he then
 commences again to lay down the sheets in the desired order, one
set above another as before, and continues to do so until the

centre of the pile becomes again inconveniently high, when again introduces another pair of wedges, and continues repeating the operation as before until the pile is completed. One or more moveable angle pieces may be used to ensure the exposed side at the end of the pile of sheets, and which fender pieces may be attached to the vertical graduated scale and the end stop plate. The pile having attained sufficient dimensions, pressure is applied, when the guards and scale piece and so forth may be removed. One side of the pile is then coated with a solution of gum or other suitable adhesive substance, and after it is sufficiently dry, the pressure is removed from the pile, and the layers or sets of sheets intended to be printed at one operation are separated from each other by a suitable blade introduced between the sets of sheets by which means each set of sheets intended to be printed at one operation is divided from the other, but leaves the sheets to be printed together attached to each other, when they are ready for the printer, who lays down the whole of the set of sheets to be printed at one operation as if they were only a single sheet.

[Printed, 10d. Drawings.]

A.D. 1860, November 3.—N^o 2696.

WHITE, WILLIAM, and PARLBY, JOSIAH.—(*Provisional protection only*).—"Improvements in colouring or obtaining the effect of colouring and other ornamentations to surfaces in relief or partly in relief."

The object of the invention is to obtain effects resembling those obtained by what is commonly called "picking in" and "picking out."

"Having produced from a mould or die or otherwise a surface partly in relief, and wishing to colour such parts as are in relief, we, instead of picking them out in colour with a brush, as is now done, apply the desired colour to a surface, by preference slightly soft or yielding, and by pressing the relief ornamentation and this coloured surface together, we transfer to the projecting parts of relief ornamentation the colour with which such surface was charged. To effect this we either press the relief ornament on the surface charged with colour, or we charge a roller, damper, or such like thing, and pass over and press its surface on the projecting parts or relief of the ornaments, leaving on them the desired colour. Should we require to colour the sunken

“ portions or ground on which the ornament or relief is formed
 “ or applied, we, having charged our roller or other colouring
 “ surface, apply it to the raised surfaces of a mould or die adapted
 “ to receive the relief or ornament, which, being pressed into such
 “ coloured mould or die, receives on its sunk portions the colour
 “ of the mould. If we require to apply gold, bronze, silver, or
 “ other leaf or powder, we apply, by the above-named process,
 “ the gold size or such like material as is ordinarily used, and
 “ having done so, apply our gold or silver leaf, bronze, or other
 “ leaf or powder in the usual way.”

[Printed, 4d. No Drawing.]

A.D. 1860, November 5.—N° 2708.

PRENTISS, ELIJAH FREEMAN.—“ A new detergent.”

Among other purposes to which the detergent is applicable is that of cleaning type. The proportion of the detergent to be used for this purpose is one gallon of the solution to five gallons of water. The detergent is a solution of silicate of soda, being a mixture of one pound of soda ash, free from salt, and two of clean white sand, or a mixture of sulphate of soda, charcoal, and white sand. The materials are ground, mixed, and then fused in a furnace similar to a glass furnace. The time required to fuse it is about ten hours, with an intense heat. The fused part is then removed, and immediately treated with cold water to soften it. It is then crushed between rollers and ground, dissolved in hot water, and evaporated down to a consistency of 30° Réaumur, and is then ready for use.

[Printed, 4d. No Drawing.]

A.D. 1860, November 10.—N° 2767.

GLEN, JOHN.—“ Improvements in machinery, apparatus, or means for engraving or producing printed surfaces.”

The invention relates to the engraving of copper or other rollers used for printing calicoes, &c., so as to obtain by self-acting means the impression of the “ mill ” or impressing roller on the copper or metallic cylinder in the predetermined order or distance asunder. According to one modification of these improvements the overhanging arm, which is jointed to and extends outwards from the laterally traversing carriage in which the mill or en-

graving roller is arranged, is connected by means of an adjustable screw link to a lower lever, which is supported by a double bracket forming a portion of the front part of the carriage. Thus the carriage and pillar, with the overhanging arm and lower lever, form a rectangular frame carrying the mill, to which an intermittent vertical motion is imparted as well as the ordinary lateral traversing movement. The self-acting vertical motion of the mill is derived from a horizontal shaft arranged in front of the machine, and driven at one end by means of gearing which is actuated by the driving pulley. This shaft has fast to it a wheel, which gives motion to an excentric which is supported in the outwardly extending bracket, and is arranged beneath the lower lever. The rotatory motion of the excentric alternately raises and depresses the mill, and the necessary force on the downward motion of the mill to impress the copper cylinder, is obtained by means of a weight or weights attached to the outer end of the lower lever. The screw link which connects the lower lever to the overhanging arm provides for the shortening or lengthening of the lift, so that the elevation and descent of the mill may be accurately adjusted to suit the different sizes of patterns to be engraved. The mill when arranged in its supporting frame has attached to one of its extremities a small rocking lever, from the free end of which a string or cord is carried over a contiguous pulley, the end of the string or cord having a weight attached to it. The moment the mill is raised from the cylinder the lever is drawn over by the counterweight, so that the mill is then brought by this partial rotation into the proper position for its descent on to the cylinder at the precise spot where the repeat of the design is required. This action of the mill is arranged so as to be reciprocal with the rotatory motion of the eccentric, and act at the moment of the ascent of the mill.

[Printed, &c. Drawings.]

A.D. 1860, November 23.—N° 2874.

BENIOWSKI, BARTHOLOMEW.—"Improvements in the manufacture of types and in cases to be used therewith."

1. An alloy composed of tin (15) with bismuth (1) is employed in the manufacture of the types, "to the total exclusion of the "poisonous metals lead and antimony." Any number of the types so cast "may be joined together to form logotypes by simply

“ rubbing their clean sides in mercury and bringing the surfaces together.” 2. Mould for casting type which has at the foot the letter non-reversed. This mould differs from the ordinary type-founder’s mould (a) in having the jaw of the lower half not as usual overhanging the carriage, but placed so far back that the upper angle of the carriage remains uncovered and is filed away to form the throat ; (b) in having the back of the upper jaw hollowed out to allow room for the foot matrix ; and (c) in the position of the upper jaw being such that its front surface is in one plane with the surface of the under carriage. 3. Logotypes manufactured with a solution of asphaltum instead of shellac, as described in N^o 1113 of 1856, “ such logotypes not being liable to be injured “ by the use of lyes.” 4. Logotypes made in a mould similar to that in which the original types are cast. The types are pressed upwards until their feet touch the jaw. The mould is then closed with the upper half, and red-hot metal poured into the mouth. The feet become melted together, the break is broken away, and the burr dressed in the usual manner. 5. Similar mode of casting in a mould of a different construction. 6, 7, 8, 9. Improved modes of producing matrices for logotypes by the use of electrotypy, whereby such logotypes are obtained from the battery perfectly justified. 10. Matrices for casting the faces of logotypes. 11. Relief matrices for casting foot letters. 12. Manufacture of relief logotype matrices. 13. Another mode of obtaining justified matrices by electrotypy. 14. The cases for holding types, logotypes, and spaces are lined with velvet, cloth, india-rubber, or some other elastic or yielding material “ which will be sufficient to hold the “ types in a vertical position, and prevent them falling into disorder when handled by very young children or awkward “ beginning amateurs.”

[Printed, 1s. 4d. Drawings.]

A.D. 1860, November 24.—N^o 2881.

DALGLISH, ANDREW ADIE.—“ Improvements in engraving or “ for producing printed surfaces.”

The invention relates to the application of photography for the purpose of putting designs upon metallic or other rollers, mills, plates, &c., with the object of transferring the design on to, and repeating it on, larger rollers and plates used in the printing of calicoes, paper, or any textile fabrics, as well as to

the printing of the design on the roller, or mill, or plate, upon the larger roller or plate with varnish or other material, and printing, embossing, or impressing the design on a varnish coated upon the larger roller or plate; also to the transferring a design or picture to copper, steel, wood, or other material, for copper plate, steel plate, or wood engraving or wood cutting. The design is photographed in the ordinary way upon glass, paper, &c., and transferred to the mill, roller, or plate by means of a varnish, with which the surface of the mill, roller, or plate is coated. A solution when required is applied to the surface of the photograph, by means of which the film of the photograph is transferred to the surface of the mill, roller, or plate, when their surfaces are brought into contact. The pattern being transferred to the mill, roller, or plate, the varnish being capable of resisting acids, the design is etched or bitten in by means of an acid, or the ground of the design may be etched or bitten with acid, and the design left in relief; or instead of being etched or bitten with acid, the design or ground of the design may be engraved, or it may be partially etched or bitten with the acid, and finished by engraving. For the printing of the design on the larger roller or plate, the design on the roller, mill, or plate may be filled with a varnish, by means of which the design may be printed on the larger roller or plate. For the printing, embossing, or impressing of the design on the larger roller or plate, the larger roller or plate may be coated with a varnish, and the design on the mill, roller, or plate may be printed, embossed, or impressed thereon, or the ground of the design on the mill, roller, or plate may be etched or bitten out, or engraved and printed, embossed or impressed on the larger roller or plate. The larger roller or plate may then be immersed in an acid, which etches or bites in the usual way. The process may also be carried out by coating the plate or other surface with gutta-percha or other varnish, and afterwards with collodion, and then taking the picture direct in the camera.

[Printed, 8d. Drawing.]

A.D. 1860, November 27.—N^o 2913.

BEATTY, FRANCIS STEWART, and ALEXANDER, THOMAS.—
 “Improvements in the production of photographic proofs, and
 “their application to printing purposes.”

A sheet of transfer paper is made by impregnating it with a

composition of isinglass, gelatine, gamboge, gum tragacanth, combined with earths and minerals, or with gelatine, dextrine, albumen, arrowroot, or a solution of india-rubber. When dry, the paper is glazed by the application of pressure, and coated evenly with a saturated solution of bichromate of potass and gum arabic, or a concentrated solution of bichromate of potass and gelatine, which may be combined with sugar, acetic acid, or alum. When this coating is dry, the paper is again submitted to pressure, to give to the composition and the paper an even surface. An impression is then taken on this sensitive paper from a negative or positive in a copying frame. The paper is then carefully covered with printers' ink, and when dry is placed in or on the surface of hot water, and allowed to remain so for some time. The heated water swells the composition on the surface of the paper at the same time that it dissolves the bichromate of potass and gum or gelatine unacted on by the light, while the picture or proof formed by the chemical action of the light has become insoluble and therefore fixed, retaining on its surface the greasy ink.

The unlighted portions of the proof being soluble and also covered with greasy ink, disappear by gently rubbing with a soft sponge in warm water, leaving the subject of the photograph in printers' ink, which, by the usual methods, may be transferred to zinc or stone for printing, and to the processes here described we have given the name of heliographic printing.

" We produce the middle tints and modify the deep shades in the production of proofs in heliographic printing, by applying to or on the surface of the photographic negative or positive a varnish composed of rosin and spirits of wine, which has the property, when drying, of dividing itself into innumerable small cracks, the intervening spaces being opaque or dark. The photographic proof so treated is laid upon the sensitive paper, and exposed to the light, and afterwards the picture obtained is submitted to the treatment already described for washing off the unlighted parts.

" When finished and transferred to zinc or stone, the shaded parts when printed off upon paper will produce a result which to the eye at a little distance appears like a uniform shading.

" In the production of printing plates by this process for surface printing from photographic proofs, we use the composition already described as lithographic writers' transfer composition, only we use it of a thicker body, combined with bichromate of

“ potass and gum or gelatine, and float the same upon a glass, copper, or zinc plate; when dry we place the photographic proof in contact with it, and subject them to the action of the light. When sufficiently impressed, the unlighted parts are washed away, using acid, if necessary, which will leave the lighted portions raised. A cast may be taken of this proof metalized in the usual way and electrotyped, and produce printing blocks for surface printing.”

[Printed, 6d. No Drawing.]

A.D. 1860, November 28.—N° 2923.

GILLET, HENRY.—(*Provisional protection only.*)—“ Improve-
ments in the ornamentation of the edges of the leaves of photographic albums especially intended for ‘cartes de visite.’ ”

“ I propose ornamenting such edges with various designs, such as flowers, designs in the style of Arabesque, Italian, Grecian, Alhambrian, or any other style suitable for such purpose, either plain or in colours, or gold, or gold intermixed with colours, such ornament being either printed, stencilled, painted by hand, transferred, or placed upon the edges by any convenient process.”

[Printed, 4d. No Drawing.]

1861.

A.D. 1861, January 11.—N° 76.

LAFFITTE, PAUL.—(*Provisional protection only.*)—“ An improved instrument for writing and printing music.”

The instrument has the appearance of a penholder, and consists of a thin stem, which, enlarging at its lower extremity, forms three branches. The first of these branches is somewhat shorter than the centre one, and contains and supplies ink to the centre branch, which is nearly cylindro-conical and slightly flattened on the sides. The central branch imprints the round (or rather oval) black part of the note upon the paper, and its end is cut in the *shape of the note*. The third branch is the shortest of the three, *cylindrical in its entire length*, and carries a pen fitting on to its

cylinder. Further, two small arms with a small hole in their centre interpose between these three branches and connect them. The action is as follows:—"Plunge the instrument (over the arms and " up to the shortest branch) into the ink; then, holding it perpendicularly between the thumb and the forefinger, press the " centre branch tightly upon the music paper, and a black oval " spot will be left. When it is desired to trace a white, or give " tails to the black, or make crotchets, rests, and other musical " signs, give with the thumb and finger a slight rotatory movement to the instrument, and the pen will become the branch " nearest the writer, and by inclining the instrument as in using " an ordinary penholder, the pen branch will be longer than the " middle one, and touch the paper first. The middle branch will " also make the bars joining the crotchets together. The arrangement of the arms may be modified and their number increased, " and the branches reduced to two, in which case the branch " above described as the central will pass through a cup forming " the reservoir of ink, and may or may not have an arm connecting it with the pen branch."

[Printed, 4d. No Drawing.]

A.D. 1861, January 17.—N^o 138.

JOY, JOHN ROBERT.—"Improvements in machinery or apparatus for lithographic printing."

The scraper is made to pass over the stone whilst the stone remains stationary. The necessary pressure is applied by elevating the table which supports the stone by means of inclined planes and slides, or levers or rods jointed at their lower ends to a cross bar in the main framing, and jointed at their upper ends to nuts carried in slides in the table supporting the stone, or fixed to the two halves of the table when so made. Through these nuts passes a right and left handed screw, which on being rotated causes them, with the upper ends of the levers, to approach towards or recede from each other, thereby raising or lowering the table and stone to the proper height to give the pressure required. The pressure frame is hinged to the main framing, and is retained upon the stone by suitable catches, which are released by the scraper on its arrival at the end of its course, whereupon the pressure frame is immediately turned up by the action of a counterweight, and remains elevated during the inking of the stone. The

motion of the scraper, which slides in the pressure frame, is derived from connecting rods worked by rotating cranks driven either by hand or steam power.

[Printed, 1s. Drawings.]

A.D. 1861, February 8.—N° 319.

HARRILD, ROBERT, and HARRILD, HORTON.—“Improvements in apparatus for printing addresses for newspapers and other similar purposes.”

The types composing the addresses required are set up in a long frame, leaving a space between every two addresses. “This frame is placed on a bed, the bottom of which is furnished with a rack, and a treadle is so arranged in connection with a lever or arm carrying on one end thereof the platten, and with a paul, click, or ratchet lever, that on working the treadle it not only brings down the platten over the label previously placed in a frisket and impresses the address thereon, but also drives forward the frame one tooth of the ratchet, and presents a fresh address to be printed by the descent of the platten, and so on until the whole of the addresses set up in the frame have been printed. The bed is then drawn back, a fresh frame laid on, and the printing proceeded with as before. An inking roller is placed over the end of the apparatus at which the frames are entered, the types in which become inked by being drawn to and fro, or simply by contact therewith, in their onward progress under the platten to the other end of the apparatus. The frame of the apparatus is provided with tables or holders, one for containing the labels, and from which they are fed by an attendant under the platten, and the other for receiving the labels after being addressed.”

[Printed, 6d. Drawings.]

A.D. 1861, February 11.—N° 349.

AGGIO, GIOVANNI GIUSEPPE.—“Improvements in stereotype plates and in machinery or apparatus for manufacturing the same.”

The invention relates to stereotype plates intended to be employed in cylinder printing machines, such as the American or *Hoe's machine*, and others of a similar character. “Segmental

“ stereotype plates, as hitherto used upon machines of the class referred to, have been much less in depth from the bearing surface or back to the printing surface of the plate than the depth of ordinary type when placed in a position for printing. This has been the cause of much inconvenience and difficulty in adjusting the plates with sufficient accuracy upon the cylindrical bearing surface for printing from. In order to avoid this difficulty, I make my plates for such machines . . . ‘type high,’ as now practised with flat plates, and in like manner I plane the bearing surfaces so as to ensure perfect parallelism between the bearing and printing surfaces. For this purpose I either make use of a machine, upon which in a suitably curved bed the plate to be planed is fixed in such manner as to be operated upon by a cutter ground to the required segmental curve, and moving along in a straight line, so as to place the bearing surface of the plate parallel with the printing face thereof, or otherwise I employ a machine which, instead of the curved cutter referred to, operates by means of a straight cutter carried by a radial arm, or by radial arms, or otherwise, so as to move in and plane the plate to the required segmental curve.”

[Printed, 10d. Drawing.]

A.D. 1861, February 21.—N° 434.

WATTS, JOSHUA JAMES, and HARTON, SAMUEL.—(*Provisional protection only.*)—“ Improvements in the manufacture of music plates.”

Instead of the alloy of tin and lead “heretofore” employed (five parts of lead to fourteen parts of tin), an alloy is used of seven parts lead and one part regulus of antimony.

“ In casting music plates it has been usual to employ two round plates or discs of metal, kept apart the required distance for the thickness of a music plate, and closed all round the edges except at the top, where the metal is poured into the mould; and it has been necessary to face one side of each of such music plates in a lathe in order to obtain the desired smoothness for engraving or stamping. Part of our invention consists in using for one of the surfaces of a mould a smooth polished metal surface, preferring steel, so as to cast music plates each with one true polished or bright surface, suitable to be

“ engraved or stamped without being, as heretofore, first faced
 “ in a lathe; and in place of employing circular moulds we
 “ employ rectangular moulds, and pour in the metal at or
 “ near one edge in place of the middle, allowing the air to flow
 “ out at the middle, or other convenient part of the mould, and
 “ when such moulds are used without one bright or polished
 “ surface to each mould, the cast music plates are faced by
 “ planing in place of in a lathe.”

[Printed, 4d. No Drawing.]

A.D. 1861, March 7.—N° 575.

WILEY, WILLIAM EDWARD.—“ An improvement or improvements in ornamenting surfaces.”

The invention consists in ornamenting surfaces, by attaching thereto paper, leather, cloth, &c., made to resemble tortoise-shell alone, or tortoise-shell with metallic devices. “ I print by the
 “ lithographic process upon the paper or other flexible material
 “ the proper arrangement of colours necessary to imitate tortoise-shell; or I produce the imitation of tortoise-shell by any
 “ process of printing, staining, or painting. In addition to the
 “ imitation of tortoise-shell, I sometimes also print or produce on
 “ the paper or other material designs in silver or gold leaf, or
 “ bronze, in imitation of the designs commonly made in tortoise-shell work, by inserting metal wires in the said tortoise-shell
 “ work. Or the said designs in gold leaf, or silver leaf, or bronze
 “ may have any desired form. I attach the paper or other material thus produced to the surface to be ornamented by means
 “ of glue or paste or other convenient adhesive matter. After the
 “ tortoise-shell, paper, or other material has been firmly secured to
 “ the surface to be ornamented, I put the articles in a drying stove,
 “ and dry them in the manner practised in the manufacture of
 “ papier-mâché goods. After the articles have been well dried,
 “ I protect the ornamented paper or other material by varnishing
 “ the said articles with spirit or oil varnish.”

[Printed, 4d. No Drawing.]

A.D. 1861, March 19.—N° 687.

WEST, BENJAMIN.—“ Improvements in cutting and ornamenting
 “ the edges of books, paper, vellum, and other substances, and
 “ in apparatus connected therewith.”

The invention consists of a machine by which the edges of the books, &c., are cut and ornamented by one process. It is constructed as follows:—At one end of a longitudinal frame is a moveable press, in which the book, paper, &c., are placed; this press is propelled upon the longitudinal frame by means of wheels or levers attached to the press, and worked either by hand or steam. Upon the top of the upright sides of the frame is fixed a knife, and behind it are placed rollers, or segments of rollers, blocks, dies, plates, or types, plain or ornamental. On the sides of the frame are also placed similar knives and rollers, or segments of rollers, blocks, dies, plates, or types, the knives and rollers being so arranged that if necessary the machine can be used for cutting only. An ordinary inking or colouring apparatus is also attached to the frame. The mode in which the machine works is as follows:—The books, paper, vellum, &c., being placed in the press as above described, it is then propelled first against the edge of the knife or knives, which cuts the edges of the books, &c., and then is passed under the rollers, or segments of rollers, blocks, dies, plates, or types, which emboss or otherwise ornament the edges so cut.

[Printed, 4d. No Drawing.]

A.D. 1861, April 8.—N° 859.

CLARK, JOHN.—"Improvements in apparatus for feeding or supplying paper or other like material to ruling, embossing, printing, and similar machines, and in certain parts of embossing apparatus."

These improvements relate to the efficiency, accuracy, and speed of the various machines to which they are applicable. "In a modification of the feeding apparatus suitable for ruling, printing, and other machines, the paper is lifted from a pile sheet by sheet by means of lifters furnished with a coating of stiff semi-adhesive matter, such as the compound (glue and treacle) used for printers' rollers, whilst, to prevent more than one sheet from being lifted at once, provision may be made for blowing air against the edges of the sheets, whereby their separation will be facilitated. To insure the commencement of ruled lines at a determined distance from the edge of each sheet, temporary stops are provided, against which the edge of each sheet

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“ is carried by the feeding action of the web, upon which the
 “ sheets are deposited in succession by the lifters referred to.
 “ The temporary stops are lifted by mechanism arranged so as
 “ immediately afterwards to put the ruling pens in action, the
 “ interval between these two actions being adjusted in concert
 “ with the feeding motion to cause the ruling to commence at
 “ the required points.

“ In a modification of the feeding apparatus suitable for em-
 “ bossing machines, a slide or carriage is arranged so as to be
 “ shifted an adjustable distance between each stroke, either by
 “ hand or in connection with the embossing action. The sheet
 “ to be embossed, instead of being freshly adjusted below the
 “ stamp after each stroke, is only once adjusted on the slide, and
 “ is fed forward the proper distance after each stroke by the
 “ action of the slide. This arrangement is applicable in all
 “ apparatus where it is required to repeat a single impression a
 “ number of times upon the same sheet. The present invention
 “ also comprises a contrivance for increasing the power of em-
 “ bossing presses, being a combination of screws of different
 “ pitches, so arranged that the stamp descends rapidly by the
 “ coarse screw, and the final compression is produced by the
 “ agency of the fine screw.

“ A further improvement consists in dispensing with the ordinary
 “ plunger slide to which the pattern is attached, and in fixing the
 “ latter to one or two springs, which may also be arranged to
 “ sustain or partly sustain the weight of the screw or screws and
 “ actuating gear.”

[Printed, 10d. Drawings.]

A.D. 1861, April 19.—N° 969.

GROVE, WILLIAM. — “ Improvements in or connected with
 “ cylinder printing machines.”

The invention relates to the collection of the sheets after they
 are printed, and consists in the employment of a delivery board
 placed at an incline behind the lower of two delivery rollers,
 through which the sheets pass, in combination with a frame carried
 on the outer ends of levers pivotted on fixed centres, whereby
 the position of the sheets is regulated on to the delivery-board.
*The delivery-board is supported upon or connected with springs in
 such manner that the paper as it is delivered depresses the table.*

and allows of the next sheet being deposited at or about the same place as the preceding sheets, until the delivery-board becomes full, when the printed sheets are removed therefrom, or from time to time as occasion may acquire, and the table rises to receive a fresh supply, and descends as before. An adjustable stop is affixed near the lower end of the table to prevent the sheets falling from it. The frame for directing the sheets on to the delivery-board receives motion through rods and levers from a cam or eccentric so as to rise and fall as required.

[Printed, *ls.* Drawings.]

A.D. 1861, April 20.—N^o 982.

CLARK, WILLIAM.—"Improvements in ornamenting porcelain " and other earthenwares and glass."

This invention relates to a new method of ornamenting the above articles by engraving and engine-turning, and consists in removing from such articles part of the colour or material previously intended as a ground for the purpose of forming designs by engine-turning. The colour to form the base or ground is first applied on the object to be operated on, either by a brush or pad, in one or two layers, according to the intensity of colour required, care being taken to preserve the freshness of the colour before operating the engine-turning or engraving. The ground being thus prepared, the object is then mounted in the lathe, furnished with a tempered steel graver of suitable form, and after having removed certain parts of this ground colour by means of the graving tool so as to form a design, the object is then dried in a stove, and afterwards baked in a close furnace. When several layers of colours are employed after the first coating and engraving process is completed, as above described, the object under operation is to be rapidly dried, after which a second coating of colour is applied, which should be always of a much lighter shade; it is then again baked in the close furnace.

For producing the effect of burnished ware on porcelain or glass after the gilt has been applied and baked, and the part mounted in the lathe, a graver or burnished of agate is employed, and the article moistened with soft soap and water. For producing various effects on the same piece of porcelain or crystal, instead of the graver, a brush is used charged with gum lac, contained in a tube fixed to a travelling support of the lathe. The gum lac should be

ground in essence of lavender and oil of poppy. The processes of engraving are the same as above described, except that for forming the lights and shades of the design a pointer of tempered steel or agate is employed.

[Printed, 8d. Drawing.]

A.D. 1861, April 25.—N^o 1042.

HUGHES, HESKETH, and HILL, CHARLES GREY.—(*Provisional protection only.*)—"Improvements in the manufacture of rollers for printing, embossing, and otherwise producing designs, patterns, figures, and shapes."

The invention relates to rollers on which the patterns are produced otherwise than by cutting or engraving alone on the solid face. It consists in manufacturing the rollers of several discs or plates of brass or other suitable metal, the edges of which are prepared as hereafter explained, and the discs are fixed on a mandril or spindle, either close together or with more or less space between them, according to the design, pattern, or device to be produced. The discs are fixed in such a manner as to rotate with the spindle. The discs are stamped out of the flat, and the edges so fashioned that the desired figure may be produced by one, two, or more of the edges of the discs when fixed on the spindles, and the repeat of the pattern may be obtained as many times as desired along the roller, dependent, of course, upon the length thereof. "In forming some patterns we stamp out a figure or device on the outer edge of the discs and repeat it all round, when we bend the figures at right angles, all in one direction, or some in one and some in the other, as may be desirable, and we form a rest or support for the figures so turned over to rest upon. We mount discs so prepared on the spindle, and print, emboss, stamp, or cut from the roller composed of the discs.

"Again, we sometimes fill up the spaces between the discs with metal, the surface of which may for some purposes be below that of the discs, or *vice versa*, and for others the surfaces of the two may be level, and we cut, or engrave any desired pattern upon the metal between the discs.

"Again, where our rollers are used for cutting out, in some cases we combine excentrics or cams and plungers with our rollers, in such a manner that after the material shall have

“ been cut or stamped plungers shall act upon the material so stamped and held between the discs and push it out from the roller.”

[Printed, 4d. No Drawing.]

A.D. 1861, April 26.—N° 1056.

DELLAGANA, JAMES.—“Improvements in apparatus for embossing and taking casts or matrices for stereotype and other purposes.”

The invention consists in the application of rollers in combination with a table supporting the article to be embossed, or from which the matrix or cast is to be made, such table being geared with a pressure roller, so that the surface speed of the pressure roller shall be the same as that of the table. The rollers are mounted in suitable frames with screws, by which the upper one is forced down on the lower, or *vice versa*, and springs or other means to support and force the one from the other. The lower or supporting roller which sustains the pressure bearing on the table is usually made much larger than the upper and pressing roller. The table is disposed between these rollers and mounted on truck rollers moving on level and parallel guides, or otherwise fitted to traverse a direct course. The table has a rack on either side, gearing with toothed wheels fixed on the upper and pressure roller, the pitch lines of such wheel and rack being at or near the circumference of the pressing roller. The subject from which the matrix is to be made is placed on the table. The material of the matrix is then placed thereon, and above it a tympan or sheet; the machine being then set in motion the whole is carried through under the pressing roller, which bears on the tympan or sheet, and forces the material constituting the matrix into all the interstices of the form of type or other surface, and so takes a perfect impression. In this manner the pressure of the roller proceeds gradually over the surface, being impressed and bearing only in a line across the matrix at any one time, which line is therefore subject to great pressure. This takes place all over the surface but not simultaneously, as is the case in embossing or forming matrices as usual. By this means also, the pressure beginning at one end or part of the table and progressing gradually over its surface, all air readily escapes from the surfaces being impressed, thereby permitting and ensuring the transfer of a perfect impression. Motion

is given to the pressing roller by suitable gear and power, which transmits it to the table; this, together with the roller, takes in and impresses the surfaces as desired. Embossing is effected in a similar manner by placing the article to be embossed and the embossing surface on the table, and passing them through below the pressing roller and impressing them in like manner.

[Printed, 10d. Drawings.]

A.D. 1861, May 1.—N^o 1089.

HOOMAN, THOMAS, and MALISZEWSKI, JOHN.—“Improve-
ments in photographic printing upon the interior of any glass
or other vessel.”

“To this end we take one or more ordinary photographic nega-
tives of the portrait, landscape, view, picture, arms, device, or
ornament intended to be printed on the interior of the glass or
other transparent vessel upon a pliable substance, such as waxed
paper or mica, or any other pliable and transparent material.
We then fix such negative upon the interior of that part of the
glass or other transparent vessel wherein such portrait, landscape,
view, picture, arms, device, or ornament is intended to be fixed,
and by means of a mould made of gutta-percha or other flexible
material completely covering the said glass or other transparent
vessel, with the exception of an aperture of the size of the nega-
tive wherein it is placed, the light being thus wholly excluded
from all parts of such vessel. We then pour into such glass or
other transparent vessel a quantity of collodion or other suitable
material, and rendered sensitive to light, which we expose to the
even light in such manner that the power of light shall act
equally around and through the transparency of the vessel upon
the sensitized substance fixed on the interior of such glass
or other transparent vessel. We then develop and fix such
portrait, landscape, view, picture, arms, device, or ornament so
produced by the ordinary process of photographing. When
dry, we back the interior of such glass or other transparent
vessel with oil colours in imitation of marble, alabaster, wood, or
any other fancy decoration, by which means the port-
scape, view, picture, arms, device, or ornament is
manent, and thus protected on the inside thereof
oil paint, and on the outside it is protected in
transparent vessel.”

[Printed, 4d. No Drawing.]

A.D. 1861, May 10.—N° 1184.

PARSONS, WILLIAM, DOWLING, JOHN, and DOWLING, JOHN, the younger.—(*Provisional protection only.*)—"Improvements in railway and other passenger tickets."

The invention is designed to prevent the resale of return tickets. One half of the ticket is printed with ordinary printers' ink, and the other half with any chemical composition, *e.g.*, a diluted solution of bismuth that will not discolour the card on which it is printed, so that to all appearance one half of the ticket is a blank piece of card, or in other words the printing is invisible, but can be rendered visible instantaneously by the application thereto of another chemical, *e.g.*, in the case of the above-mentioned solution, a solution of sulphuret of potash, the printing will be quickly rendered visible. "It is proposed, therefore, that the visibly printed half of the tickets should be given up at the end of an outward journey, so that the other half of the ticket for the return journey would be the apparently blank piece of card, which, when delivered up at the end of the return journey, would be pinched by the ticket collector with an instrument something resembling a small pair of flat-ended curling tongs, the bottom of which would be plain, and the upper part would hold a sponge saturated with a solution of sulphuret of potash, which would instantly develop the printing."

"Now it is a well known and common practice for persons to sell return tickets, but then they see what they are paying for; whereas by this invention there would be nothing but an apparently blank piece of card, which, of course, no stranger would purchase, and should persons succeed in developing the printing thereon the railway company would not be defrauded, because, when the return portion of the ticket was delivered to the collector he would insist on payment thereof."

[Printed, &c. No Drawing.]

A.D. 1861, May 15.—N° 1239,

WILLIAM. — "Improvements in machinery for printing paper-hangings,"
 in employing in connection with said roller covered with said material for the purpose of printing the

material to be printed over a much larger portion of the circumference of the printing roller than is at present obtained. This additional roller is pressed against the printing roller by screws or other means, and enables the paper to be a sufficient time on the surface of the printing roller to absorb effectually the colour with which the paper is to be printed.

[Printed, &c. Drawing.]

A.D. 1861, May 22.—N^o 1304.

NEWTON, WILLIAM EDWARD. — (*Communicated by Stephen Davis Tucker, of New York, U.S.*)—"Improvements in printing "machinery."

The invention consists, first, in the application to a small single cylinder of a fly frame for piling the printed sheets as they come from the type. The type bed and distributing table have a to-and-fro motion on a railway, for which purpose they are mounted on wheels, and this form of press is therefore termed the railway machine.

The next improvement relates to a smaller machine usually called a job press. In this machine the type bed is placed in an inclined or nearly perpendicular position, and is stationary. The platten is mounted on an axis, so that when the paper is fed on to it the platten by turning on its axis is made to rise and bring the sheet against the type, which is inked by a self-acting inking apparatus that runs on guides placed beside the type bed. The inking fountain is placed above, and the inking apparatus rises up to it for its supply. The platten is provided with guides or stops against which the paper is fed, and there are a couple of light vibrating arms, whereby the paper is held on the platten and is removed from the surface of the type when printed. The paper is fed in and taken off by hand.

The next improvement also relates to machines which are applicable for job work. In this instance also the type bed is stationary, but is placed in a horizontal position. The platten is mounted above the type bed, and when the paper is fed in it is brought down to receive the impression. The paper is carried in under the platten by means of fingers, and the type is inked by means of inking rollers which are made to travel over it.

Novel mode of mounting the inking rollers of printing machines, so that they may when required be thrown back from this dis-

tributing surface and the form of type. This movement is effected by means of lever arms and excentrics on the end of the rollers, and by turning the excentrics the inking rollers and frame are slightly lifted away from the distributing or type surfaces, and if desired may be thrown altogether out of gear.

[Printed, 4s. 6d. Drawings.]

A.D. 1861, May 27.—N° 1334.

BIRKBECK, GEORGE HENRY.—(*Communicated by M. François Normand, of Paris.*)—"Improvements in apparatus for converting "circular or rotary motion into alternate rectilinear motion."

This invention relates to an improved arrangement of apparatus for converting circular or rotary motion into alternating rectilinear motion, and is particularly applicable to printing presses and other machines where an universal joint is employed for transmitting the circular motion of an axis to produce alternate to-and-fro movement in other parts of such machines, and the object of these improvements is to obtain a more equable motion to mechanism of this kind than heretofore. For this purpose the arms connected to the fork of the universal joint are of considerable length, and are otherwise suitably arranged, by which the angle at which the axis of the toothed pinion which takes into the toothed rack may be greatly increased, and the irregularity in the working is avoided by forming the toothed pinion slightly oval or elliptical in place of circular, with a suitable arrangement of the teeth, which teeth work into the teeth of the rack, which are similarly arranged to those of the pinion.

[Printed, 8d. Drawing.]

A.D. 1861, June 12.—N° 1510.

NAPIER, JOHN.—"Improvements in stereotyping."

The invention is said to possess many advantages over the plaster or paper processes.

Under one modification a planed cast-iron plate is prepared to receive the plaster or stucco impression in the following manner:—A piece of cartridge or other paper is cut to the size of the plate, and pasted on the planed surface of the plate. The upper surface of the paper is also pasted, and a mixture of plaster of Paris and water prepared to the consistency of thick cream is poured on to

the paper. The surface of the plaster is levelled to the required thickness by means of a straight-edge or other suitable tool. The "form" containing the type blocks or pages to be stereotyped is "locked up" by quoins in the usual manner, to prevent the type from falling out, and the surface of the type is oiled. The form is inverted, and the type laid with its face downwards upon the freshly prepared plaster, and the form is allowed to remain until the plaster has set. The form is lifted off, and the plaster dried completely from the metal side. A flat cast-iron plate covered with paper is provided; this plate has metal gauges to regulate the thickness of the stereotyped plate. The matrix plate is screwed or wedged to this plate, and both are well heated; the molten metal is then poured in, and an exact counterpart of the type or form obtained. After allowing the stereotype cast to cool, it is removed and finished by planing or chipping if necessary.

[Printed, 4d. No Drawings.]

A.D. 1861, June 13.—N° 1525.

DOWNING, THOMAS MARSHALL.—"Certain improvements in
"the manufacture of corks and bungs."

The only part of the Specification relating to the present series is the fourth or last part, which consists of a mechanical arrangement for smoothing, finishing, pressing, and embossing the above articles by means of heat with the manufacturer's name, trade mark, &c.

The rough corks are placed tightly in moulds, the form of which is that of the required cork. These moulds are then subjected to heat of about 300° by hot air, steam, or other fluids.

The apparatus for effecting this consists of a steam wheel about five ft. in diameter, having a rim that is oblong in cross section, and cast hollow, its greatest width being at right angles with the axis; two parallel passages unite this rim to a centre chamber, at each end of which is a hollow gudgeon, upon which the wheel turns, and through one of which the steam enters, passing up one of the before-mentioned passages around the hollow rim, down the other passage, and out through the other gudgeon. A number of metal moulds, either round, oval, taper, or otherwise, are placed equidistant, and as close together as convenient, and concentric with the axis; these pass through the hollow rim parallel with the said axis, being firmly secured steam tight in the metal sides, each end of the mould being open. A number of these circles of moulds may

be placed in the said rim, each circle containing the same number of moulds. Upon each side of the wheel is placed a shaft at right angles to its axis, and in the same plane two cams are fixed upon each shaft, which as the shaft revolves, urge forward a cross head or slide moving in guides parallel with the axis of the wheel. In these cross heads are fixed two lines of studs, so arranged that they correspond accurately with the moulds, into which they enter as the cross head is urged forward; each of the upper line of studs carries before it a rough rounded cork from the bottom of an oblong tube, similar to that described in the last machine, but being cut away so as to allow the bottom cork to be pushed out endways by one of the said studs into the moulds, with one of which each tube corresponds.

The bottom line of studs each force a cork that has been placed in from the opposite side, and that has remained in the mould during the time occupied by the steam wheel in making one revolution less two moulds more or less. The cross having been caused to return to their original position by springs or other means, a paul actuated by a lever, actuated by a stud fixed on the side of the driving wheel upon the cam shaft engages with a tooth (there being cast equidistant around the periphery of the steam wheel a tooth for each mould in a circle) causing the said steam wheel to turn until the next under moulds correspond with the studs. Another lever may be placed so as to release a detent so as to stop and maintain the said wheel in its proper position. The cam shafts are caused to revolve by means of worm or other wheels from a shaft driven by a pulley and band.

[Printed, 2s. 2d. Drawings.]

A.D. 1861, June 18.—N° 1561.

SHARP, STEPHEN.—(*Provisional protection only*).—"Certain improvements in printing machines, and in apparatus for taking off and delivering the sheets when printed, and which said apparatus is applicable to printing machines now in use."

The invention applies to "fast machines" constructed with a number of small cylinders deriving their motion from a large cylinder, "each small cylinder having its own laying-on board, so that the process is continuous, namely, that of laying on the paper, and its accompanying roller taking it around over the form, and delivering it; and I purpose increasing my number

“ of small cylinders according to the amount of work required to be printed.”

2. Printing (also in connection with a flat form) either on one or both sides of a continuous roll of paper passed under a cylinder and over a form, and taken away by being passed between rollers, and cut off into lengths as required according to the size of form, but when the said continuous roll of paper is required to be printed on both sides, it is brought back through a pair of rolls, and again passed under a roll and over the second form, and delivered, as before stated, by being drawn out between rolls to be cut off.

3. Inking apparatus for printing machines, consisting of a self-acting screw, which gives to the roller a lateral as well as a revolving motion, by which means the ink is more uniformly distributed over its surface from inking the form.

Peculiar construction of taking-off apparatus, applicable “ to machines now in use, as well as to my improved machines before described,” consisting of flat or circular brushes working with or without tapes around the cylinder to pass the sheets between rollers and tapes or cords, and thereby deliver them, printed side upwards, at any desired point. The sheet is delivered out of the tapes by means of intermittent striking bars or whips deriving their motion by cams or other suitable means.

[Printed, &c. No Drawing.]

A.D. 1861, June 21.—N^o 1603.

JOHNSON, JOHN HENRY.—(*Communicated by Louis Kessler and Joseph Alfred Xavier Michiels, of Paris.*)—“ Improvements “ in the reproduction of forms of objects applicable to the production of printing surfaces.”

The essential feature of the new processes which constitute this invention is the employment of an expansible and contractible plastic substance, such for example as gelatine, gluten, coagulated albumen, caoutchouc, and plastic substances used in the ceramic art, fibrine, and other substances of an analogous nature. The expansion or contraction of reproductions or impressions obtained by the aid of these substances may be effected in various ways, as for example by the processes of endasmose or exasmose, imbibition, dessication, or by mechanical compression or expansion. By the employment of the substances and the processes hereinbefore

referred to negative reproductions of forms or objects can be obtained, that is to say, reproductions in intaglio from forms in relief, and *vice versa*, and also positive reproductions by repeating the operation either in the same manner or by the aid of other processes. The shrinking or contraction of the gelatine, and its hardening when such substance is used, is effected in such a manner as to allow of it being black-leaded by a brush without endangering its surface. The contraction may be effected by means of the cupreous baths employed in electrotyping more especially if care be taken that such baths be as neutral as possible, and if a slight addition of a syrupy solution of iron with excess of acid be made thereto. In lieu of black-leading, it is preferred to coat the surface of the cast or impression with a deposit of gold or silver in the well known manner; these two methods of preparation admit of the application of a deposit of copper on the gelatine by the electrotype process.

[Printed, 6d. No Drawing.]

A.D. 1861, June 25.—N° 1619.

LAFON, JULES.—“Improvements in the production of chromo-lithographic impressions upon glass, porcelain, and other similar material.”

A lithographic impression of the design is taken dry on a paper, sized, glazed, and first coated on the side which is to receive the impression with a solution of gum arabic, or other very homogeneous gum, and on this gummed side the black of the design is first printed. The impression of the other colours is obtained by reversing the process of chromo-lithography upon paper, (that is to say,) the last colour but one must be printed after the black, and immediately powdered with the desired colour, and so on to the end. The third impression must be either of gold or silver (in leaf or powder), and should cover entirely the preceding powdered colour. The fourth impression is made in the same manner, and must also cover the whole design; in one word, it is necessary that all the colours be covered with gold and silver, besides all these colours must be printed with a transparent mordant. When the chromo-proof has arrived at this point, to counter-draw it on glass or other material a new impression on ground must be made covering the whole design, and printed with a transparent mordant, composed of extra strong copal varnish

and white resin. Immediately after the impression of the ground, the back of the paper is moistened with a sponge; this side of the proof is then placed upon moistened paper, and when the humidity has sufficiently penetrated it, this proof is placed by hand on the glass or other object, which is to carry the label or design. The proof is first fixed by moderate friction with the palm of the hand, and afterwards an equal and sufficient pressure is exercised over all the surface, using a roller covered with caoutchouc; the paper, thus gummed on to the glass, is again moistened with the sponge, and when it begins to fold it is arranged with care. The design is then allowed to dry for a moment, and the object is then washed with water (using a fine sponge), to remove the preparation left by gumming of the paper, and the excess of the mordant, which has served for impression of the colours, gold and silver. The operation of chromo-impression is thus provisionally ended, as there remains but to allow the object upon which the impression has been made to thoroughly dry, and when (by passing the hand over it) the design is ascertained to be dry, the operation is complete by applying with a very fine brush a coat of drying varnish composed of sugar or caramel and perfectly rectified alcohol.

[Printed, 42. No Drawing.]

A.D. 1861, June 28.—N° 1652.

HARLAND, JOHN WHITFIELD.—(*Provisional protection only.*)—

“ An improvement or improvements in the manufacture of wood
“ or other types or substitutes therefor, and also in the matrix or
“ apparatus for producing the same.”

1. Paper or paper pulp, horn raspings or shavings, bone dust, wood shavings or sawdust of the same or other substances in a state of combination, saturated with size, fish glue, or other suitable cement, is pressed into a matrix of a form to give it the shape of the type required. This operation being performed, the type is removed from the matrix, and after being dried is, if necessary, reduced to the correct size for being used in the printing press.

2. On the surface of a cast-iron plate, which has been made accurately flat, is traced the outline of the type to be produced. On all sides of the outline are placed pieces of steel or other metal of the requisite forms so as to enclose on every side the outline; the edges of these pieces of metal are then tapered, after which

they are firmly attached to the plate by means of rivets or otherwise. "The blank or white parts of the letter or type are produced by pieces of metal attached to the plate in the same manner. By this means I am enabled to produce the matrices without having recourse to the usual expensive process of die cutting."

[Printed, 4d. No Drawing.]

A.D. 1861, July 13.—N^o 1765.

GEORGE, LOUIS.—(*Provisional protection only.*)—"Improvements in the method of soldering together two or more printing type letters to facilitate the work of the compositor, and in the arrangement of type cases for the same."

The letters mentioned in the Specification are those that occur most frequently in words in the English language, "so that in one operation the compositor is enabled to do twice or more times the amount of work, according to the number of letters combined, than by the ordinary mode now in use." The combined letters stated to have been found of most value, are *be, com, con, ent, ion, in, for, ge, ing, ld, me, the, and, th, ve, al, re, os*. The letters are soldered with the following composition used cold:—Two thirds of mercury, and one third of fine tin mixed well together. "The solder is put on a plate of lead, and the broad side of the type rubbed thereon, and the composition is afterwards done as usual, the solder becoming quite rigid at or about the expiration of half an hour."

[Printed, 4d. Diagram of case.]

A.D. 1861, August 3.—N^o 1936.

LEWIS, JOSEPH.—"Improvements in producing and treating printing surfaces, in producing and preparing transferring surfaces, in transferring, in producing impressions on an altered scale, in preparing or treating surfaces of lithographic stones, and in obtaining devices or designs; also in agents and apparatus used in some of such improvements, parts of the invention being also applicable to photography and to ornamenting pottery, porcelain, and glass."

The invention consists of twenty-six heads, the claims being thirty-one in number. 1. Elastic transfer surface. This design is produced on gutta-percha or india-rubber, on a larger scale than is

required, and then contracted by heat. The reduced design is transferred in the usual way to surfaces requiring to be ornamented. 2. Lithographic stones are coated with an aqueous solution of soluble glass or liquid silic to render them more durable and preserve them from the effects of repeated printings. 3. To reverse the lights and shades of work from a printing surface, an ink impression is taken and transferred to a stone, "prepared by soluble glass or otherwise;" it is then dusted with resin or bronze until the ink is fully charged and washed in acidulated alum water. 4. "To produce upon metal raised or sunken designs for transferring or printing, I take a plate as prepared for engravers, and produce thereon a transfer as if it were a lithographic stone;" the ink portion is then dusted with resin powder or bronze, the plate cleaned with acidulated water or solution of a mercurial salt, and then gilt by electrotypy or otherwise. 5. "Automaton register," by which the various manipulation details of photo-lithography such as etchings, exposures to light, &c., can be repeated until perfect results are obtained. 6. Like methods of employing the automaton register to the production of etchings on stone and metal plates, and obtaining photographs, photo-lithographs, and photo-printing and printing surfaces generally. 7. Mode of transferring photographs to stone, metal, &c., or transferring the same to paper. A coat of oil of lavender and asphaltum is laid over the surface to which the photograph is to be transferred, the light being shut off during the operation. The photograph is then placed in the register frame and shut down on the sensitive surface. The light is then admitted, and after a time again shut off, when the surface is washed with a mixture of turpentine and bisulphuret of carbon or other solvent. The light is again shut off, the surface, the sensitive coating again applied, the frame shut down, and the light admitted. These coatings, exposures, and fixings are repeated until a perfect copy is obtained. 8. To produce a surface printing plate for lithographic transfer or printing purposes from a photograph, or written or printed matter. A film of white lead, chalk, or white clay is laid on a flat plate fastened to the bed of the automaton register. The photograph, &c., is placed in the frame of the register, the white lead or other film coated with asphaltum and oil of lavender, the frame shut down, and exposed to the light, after which the surface is washed with a mixture of turpentine and bisulphuret of carbon until the drawing is developed. 9. If the printing

plate is to be made from impressions taken from a printing surface, an impression is taken on the chalk or white lead surface in transfer with the latter binding the particles of the composition together, so that in the operation of brushing those portions protected by the ink are preserved. The coating and printing are repeated, the register of the impressions being secured by the use of the automaton registers, till the work is sufficiently raised.

10. Use of oil of lavender and asphaltum as a sensitive medium in photographic operations. 11. For obtaining raised and sunken surfaces for printing and embossing; a transfer of the design is made on stone or metal, generally on a larger scale than the printing surface is intended to be. 12. Mode of reproducing from type or any raised surface reduced duplicates by spreading on an attenuated sheet of india-rubber a thin film of gutta-percha, on which, while hot, an impression is taken which serves afterwards for a matrix, the india-rubber being relaxed until the matrix assumes the size and shape desired. 13. Use of bichromate of potash in combination with gelatine or other substance, which will retard the crystallization of such bichromate as a photo-actinic medium, and also as a sensitive mixture instead of asphaltum and oil of lavender. 14. Mode of transferring chromolithographic work to stone, plate, or other printing surfaces, so that the transfer shall be of the same size as the original, and each colour or tint register exactly. 15. Use of transparent or semi-transparent extended india-rubber for tracing purposes, more particularly where such tracing is used to form a printing surface without further artistic labour. 16. For preventing the counterfeiting of checks, notes, trade marks, &c., the subject is produced on an unequally distended piece of india-rubber or gutta-percha, then on causing the elastic material to contract or recoil the work will appear metamorphosed or distorted. 17. Peculiarly constructed wheel for extending the elastic transfer medium in all directions simultaneously. 18. When gutta-percha and india-rubber are used together they are united by heat, after which a stout sheet of paper or card-board is stuck under the expanded sheet, and the whole pressed until the adhesive agent is dry, and the gutta-percha hard. 19. Durable transfer surfaces obtained by producing work on gutta-percha or india-rubber with transfer ink, and these can be rendered almost imperishable by enclosing them in air-tight receptacles. 20. Taking transfers from india-rubber surfaces used or enlargements or reductions. The transfer paper

contains an extra quantity of gelatine in its composition, and is damped before being applied. 21. Use of a cylinder arrangement as an automaton register. 22. To restore worn work. The automaton register is employed to obtain exact register, and an impression of the original design is then transferred to the worn surface. 23. Modification of the automaton register wherewith to obtain better negatives. 24. Mode of producing raised and sunken blocks or plates for printing purposes from a design or subject written, photographed, printed, or otherwise executed as a flat surface. 25. Automaton register applied to the production of printing surfaces by the photoglyphic and other processes. 26. Mode of reproducing by the automaton register the portions of a design which have been worn.

[Printed, 4s. 6d. Drawings.]

A.D. 1861, August 6.—N° 1951.

TURNER, JOHN, and DUNNETT, ROBERT BUCHANAN.—
(*Provisional protection only.*)—"Improvements in stamping, endorsing, and embossing machines."

The invention relates principally to that class of machines used for stamping, endorsing, embossing, and printing in colours, wherein the die receives the colours from an absorbent "pad" or cushion at one part of the stroke and transfers the impression to the paper placed on another "pad," at another part of the stroke or by a return movement. The machines, however, are also suitable for embossing in relief in connection with a stationary matrix, or for any other stamping process.

In constructing these machines "we secure near the top of an ornamental stand or pedestal, of about the usual shape, a stud or pin, to which we attach a toothed wheel and joint, or hinge a lever; to this lever we secure other two or more studs or pins to carry an equal number of toothed wheels left free to revolve on their centres, geared together, and to the fixed wheel above referred to as secured to the stud in the stand or pedestal. to one of the wheels free to revolve on their centres, by preference the one furthest removed from the joint or hinge, we affix an arm to carry the engraved, embossed, or otherwise ornamented stamp or die."

[Printed, 4d. No Drawing.]

A.D. 1861, August 13.—N° 2009.

JACOB, JOSEPH.—(*Communicated by Franz Kooch, of Vienna.*)
—“Improvements in producing on porcelain and other ceramic
“products on glass, Venetian enamels, and on metallic sur-
“faces, designs in colours and in gold, silver, and other metals.”

The invention consists in, first, printing designs on paper from stone, and then transferring them to the object to be ornamented. As usual in chromo-lithographic or colour printing, the various colours and metals are printed on the paper in succession, each from a separate stone. The paper, which is prepared to prevent shrinking or stretching, is coated with a varnish composed of gum and casein on the side on which it is to be printed. The prepared metals and colours, as well as the vitreous mass of flux, are in all cases reduced to the finest powder or dust before being used. The decoration of ceramic products and enamels can be effected in two distinct ways, namely, upon the glaze and under the glaze. For decorating with colours upon the glaze, the enamel flux suitable for the designed colour is ground into a paste with varnish spread upon the roller and transferred upon the stone, from which it is printed on the paper in the lithographic state. When the colours and metals are dry, the paper is coated with a solution of resin, and when this latter is likewise dry, the paper is laid upon and gently pressed against the article to be decorated. For decorating upon the glaze, the object, before pressing the paper upon it, is first coated with an adhesive resinous solution of turpentine and damar in oil of turpentine, and for decorating under the glaze the object is first coated with a weak solution of shellac in alcohol, and then with the adhesive resinous solution. The object or article is then placed in a vessel filled with water, where the paper becomes detached, the design remaining on the object, which is then dried and baked in the usual way.

[Printed, 4d. No Drawing.]

A.D. 1861, August 21.—N° 2088.

MENNONS, MARC ANTOINE FRANÇOIS.—(*Communicated by Henri Violon, of Paris.*)—“Certain improvements in presses for
“lithographic printing.”

The invention consists of “the adaptation to lithographic
“printing of the ordinary single intermitting cylinder typo-

“ graphic press modified to that effect, as follows :—1. By the application of a damping arrangement in which the water taken up from its reservoir by capillary fibres or tissue is delivered “ drop by drop,” the moistening of the stone being rendered uniform by secondary dampers. 2. By the substitution of small pincers to the tapes generally employed for detaching the printed sheet from the pressure cylinder. 3. By peculiar combination of rollers, rods, and guide tapes, by which the printed sheet on being freed from the cylinder is carried to the sorting table.

[Printed, 10*z*. Drawings.]

A.D. 1861, August 23.—N^o 2111.

INGLE, HENRY, and INGLE, JAMES.—(*Provisional protection only*).—“ Improvements in printing machines.”

The invention relates : 1. To an improved means of driving the table, and consists in substituting for the toothed sector, described in the Specification of Ingle’s Patent of 1858, No. 64, a compound lever, one end of one arm of which is pivoted to the lower end of the other arm, the upper end of which is jointed to the table. The to-and-fro motion is obtained by a rod connecting the compound lever to a crank on the main driving shaft. 2. In driving the inking roller and causing the vibrator to rise at the same time by a ratchet and paul and adjusting roller, driven by a rod connected to a crank on the driving wheel shaft, or other suitable motor.

[Printed, 4*d*. No Drawing.]

A.D. 1861, September 2.—N^o 2190.

SALERES, ALPHONSE NICOLAS.—“ Improvements in printing “ and colouring paper, chintz, and other fabrics, and machinery or “ apparatus for that purpose.”

“ To a suitable framing I connect a series of cylinders, say “ four, capable of revolving by toothed gearing ; the foremost of “ these cylinders carries the fabric to be printed or coloured, and “ the hindermost cylinder works in a trough containing colouring “ matter ; the surfaces of all the cylinders are in contact with each “ other. Over the foremost cylinder aforesaid I adapt a V-shaped “ trough, divided into numerous compartments, the bottoms of “ which are open, and rest upon the cylinder aforesaid, and I so “ connect the said trough with certain mechanism as to impart

“thereto when desired a reciprocating movement lengthwise of the said trough, so that supposing the fabric intended to be printed or coloured to be moving round with the cylinder on which it is placed, and end movement imparted to the divided trough aforesaid containing the colouring matter, wavy or undulating lines or stripes of different colours may thus be produced, or one entire tint of the same colour may be spread over the surface of the fabric, and upon this or the striped coloured ground aforesaid, devices, designs, or patterns may be printed of any colour through the medium of an engraved cylinder supplied with colouring matter from the hindermost cylinder before described; or, instead of using cylinders, flat surfaces could be so arranged and actuated as to receive the colouring matters and printing impressions.”

[Printed, 8d. Drawing.]

A.D. 1861, September 17.—N^o 2322.

BAILEY, ALBON HONESTUS.—(*Provisional protection only*)—
“An improved system of combination of types, and an improved case for containing the same.”

The invention consists in “combining in pairs those letters of the alphabet that are capable of being used together.” By this system “all the possible combinations of two letters, which are in sufficient general use to render it desirable, may be employed without making the cases cumbersome, or without obliging the compositor to change his position on the floor, or to make inconvenient reaches while setting his types, and the result is that he is enabled to accomplish nearly double the amount of work which he was capable of by the use of single types alone.”

The boxes in the case shown in the drawings are so arranged that all the combinations commencing with the same letters are in the same column. The “columns may be either vertical, horizontal, or diagonal.”

[Printed, 6d. Drawing.]

A.D. 1861, September 25.—N^o 2387.

BANKS, JAMES.—(*Provisional protection only*)—“Improvements in electro-magnetic telegraph printing apparatus or

" marking instruments, and the instruments or apparatus to be used in connection therewith."

The invention relates to machines in which the code of signals consists of arbitrary signs marked upon strips of paper or other material. The only purpose for which clockwork is used is for rotating the drawing off rollers and causing the strip of paper &c. to move through the marking apparatus at an uniform rate. The marking or pointing apparatus is independent of the going movement.

" In all electro-magnetic printing instruments heretofore employed in practice, an adjustment of the distance between the electro-magnets and their armature or armatures becomes necessary upon a change from a long to a shorter circuit or vice versa, and from other circumstances connected with the practical working of electro-magnetic telegraph instruments.

" Now one of the objects of the present invention is to render such adjusting apparatus and the changing of working thereof necessary in all the ordinary cases which at present exist in practice, as also under the ordinary conditions or where the instrument has been arranged in proportion to the distance to be worked and the battery power to be employed. . . . Instead of employing a vibrating beam or lever, one end of which is depressed whilst the other is raised, for the purpose of bringing the tracer, style, or pointer in contact with the strip of paper, or for the purpose of bringing the hammer or striker mounted thereon actively against the strip of paper or other material, I so place the armature, and so form and dispose the polar terminals of my electro-magnets as to produce on the transmission of each current a direct action or upward or longitudinal motion of the armature carrying the tracer, pointer, or striker, by which in the machine shewn in the drawing the strip of paper or other material is brought into contact with edge of a rotating disc which in turning, by contact with the strip, becomes inked, and in turn imparts the required mark to the strip.

" Instead of placing the electro-magnetic coils and the armature at one end of a lever and the apparatus for marking or converting the more or less prolonged contact or passage of the electric current into inked marks, indentation, or other means of conveying signs, letters, or figures at the other end of such lever, or at some distance from the magnetic apparatus, I by my present invention produce the required action and the

" entire operation within the same mounting, the paper or tape guide and the marking disc with the inking apparatus surrounding the magnets.

" I construct a 'relay' instrument with two electro-magnets and armature similar to the printing apparatus described, but of suitably reduced dimensions, each magnet being composed of a sufficiently long length of a finer wire than that ordinarily employed in the printing instrument used in connection therewith, and I prefer to inclose such relay instrument in a close fitting case or tube providing suitable insulation in the cap thereof, or in any other convenient part of the apparatus, for the metallic connection provided for receiving the "line" currents, and transmitting local currents to the printing instrument. And I provide a sufficient number of metallic terminals around the base of the relay instrument, or in any convenient position externally, by which the various lines and connections, local main line battery instrument, and earth may be coupled."

[Printed, 10d. Drawing.]

A.D. 1861, October 4.—N° 2484.

DELLAGANA, JAMES.—(*Provisional Protection only*).—"Improvements in finishing and perfecting curved or circular stereotypic plates, and in apparatus for the same."

The invention relates to thin stereotype plates fixed on a cylinder. In order that they may be truly cylindrical and of uniform thickness, the curved stereotype plates are subjected to a planing, smoothing, and compressing process by placing them on a metal bed, smoothly and truly prepared of the form desired, over which a curved instrument travels in a longitudinal direction, being forcibly impelled and rigidly confined by suitable guides in its course over the stereotype plate. The plate being held by suitable stops, the instrument in passing over the plate forces every part of its surface down on the curved bed, by which it receives its true form. The instrument at the same time shaves or removes from the back part of the plate any excess of thickness, and reduces the whole to a uniform thickness.

Instead of the curved instrument a straight instrument may be employed, but in that case it must be mounted on an axis, and form a radius and describe a circle, the same as that of the printing

cylinder, a curved bed being used for the purpose, and the plate held as before.

[Printed, 4d. No Drawing.]

A.D. 1861, October 8.—N° 2511.

BREMNER, SAMUEL.—"Improvements in the construction of "printing machines, and in driving or actuating the same."

1. The carriage or type-table receives to-and-fro motion through the intervention of a pair of vertical vibrating lever arms, keyed at their lower ends to a rocking shaft working in bearings near the bottom of the main framing, whilst they are jointed near their upper ends to connecting rods actuated by crank pins, which give the necessary vibrating motion to the levers. These levers are connected at their extreme upper ends by means of links to the axle of a pair of spur pinions which run along stationary racks, secured to a portion of the main framing, and gear also into corresponding racks attached to the under side of the carriage or type-table. The lever arms are slotted longitudinally at the part where the connecting rods are jointed thereto, so that by adjusting the point of contact near to and farther from the working centres of the levers any desired amount of traverse of the carriage or type-table may be obtained without changing the throw of the crank pins. In order to stop the impression cylinder, and lock it after each impression during the running back of the form, a vertical and sliding bolt or catch is used taking into a notch inside the end of the cylinder, and acted upon so as to come in and out of action at the proper times by a long slot made in the carriage or in the rack which drives the cylinder, or by a cam on the rocking shaft of the vibrating lever arms. In combination with the locking bolt above described there is a friction strap or break, which prevents the sudden shock or jar which would occur were the cylinder stopped solely by the insertion of the locking bolt. A self-acting arrangement for opening the grippers at any desired part of the revolution of the impression cylinder, thereby affording more time for the insertion of a fresh sheet after the removal of the printed one, is effected by means of an adjustable curved, or *inclined* surface, against which a roller on the end of the arm of *the gripper bar* runs, and by depressing or partially turning such *arm* effects the desired opening of the grippers. The vibrator or

roller, which first receives the ink from the duct roller, is caused to rise and fall from and towards the inking table by means of a cam on the second-motion shaft of the machine, or by a cam on the rocking shaft of the vibrating lever arms, such cam actuating a suitable combination of levers and connecting rods for effecting the motion desired, in lieu of such motion being obtained from the carriage or type-table.

2. It is proposed to drive or actuate printing machines in a direct manner by means of a steam cylinder and its requisite accessories secured or fitted to the main framing of the machine to be driven or actuated, in place of transmitting the motive power thereto by the intervention of driving straps and pulleys.

[Printed, 1s. Drawings.]

A.D. 1861, October 9.—N^o 2521.

COATHUPE, HENRY BENTINCK, and WALTHAM, FRANK HIGGINS.—“Improvements in obtaining or producing and applying embossed or raised and engraved or indented metal or other surfaces.”

A mould is taken in plaster, paper, sulphur, glass, metal, gutta-perch, wax, starch, or soluble gums, or vegetable or mineral substances from ordinary types or designs on copper, steel, or other surfaces. This mould is scraped down to the finer lines, leaving on it an indented impression reading from left to right. A second mould is taken from this in plastic material or papier maché, the letters, &c., being now reversed; from this a cast in metal is then taken, when “an indented plate is produced precisely similar to those produced by the tedious process of engraving. This is to be filled in with coloured or plain inks, pitch, sealing-wax, or other substance, the plate being freed by friction; or the types may be flooded with plaster to the first edge of the surfaces, and placed with any harder metal than that which is to be used in casting. The liquid metal is then to be poured direct upon the forms or types without any moulding whatever, and the same effects are produced as in the former case. The plate so obtained is to be passed through a metal planing machine, whereby it will be completed except as regards the filling in with inks, no facing being required.”

Door plate and other large letters are cast in a paper mould taken directly from the types by beating the paper with a hard

brush. Mode of producing surface letters by means of a cast from printing types and by stamping in thin sheet metal.

[Printed, 6d. Drawings.]

A.D. 1861, October 10.—N° 2531.

FELT, CHARLES WILSON.—“An improved machine for setting, “ spacing, justifying, and distributing printers’ type.”

1. The types are arranged in lines in separate columns as received from the founder, one end of each column being exposed in such a manner that a pincer mechanism, operating similarly to human fingers, can take one type at a time from any column and place it in the line which is composing; connected and moving with these pincers is a mechanism which acts when commanded by the operator to place at the end of a word, separating it from the next, a piece of metal termed a “machine space.” There being always a practical limit to the length of the line which is composing, a mechanism is employed to indicate when the available space for the type in each line is nearly filled, so that the setting action of the machine may be seasonably arrested by the operator, and the line transferred by the action of the mechanism commanded by the operator to the spacing mechanism, thus line by line can be successively composed and transferred to the spacing mechanism. The movements of the mechanism in setting the type can form, upon the principle of the jacquard, a register of the set type, and the movements of the mechanism can best be controlled by the operator through the medium of a keyboard.

2. Automatically spacing and justifying the composed lines of type. Ordinary spaces of a certain thickness are inserted at first by the side of the previously mentioned “machine spaces,” until the line will contain no more, which fact is indicated by the mechanism. Then the machine spaces are withdrawn one at a time, and ordinary spaces of the same thickness are inserted in lieu thereof, provided the line is of the exact required length, but if the line is too short, the mechanism will insert ordinary spaces, which are slightly thicker than the machine spaces, till the discrepancy in length is filled up, when the spaces left by further withdrawal of machine spaces are filled as before mentioned, the mechanism opening the line at the places where spaces are withdrawn and inserted to prevent wear. The line being spaced and justified is led out upon galley. Distribution of the matter set up is done

by reverse action of the pincers before referred to, which are made to operate on the type, removing them from the stick and placing them in columns, the mechanism being controlled in its action through manipulation of the keyboard by the operator, or by the register obtained in setting up the matter.

[Printed, 2s. 8d. Drawings.]

A.D. 1861, October 15.—N° 2565.

WYNANTS, CORNEILLE.—“An improved chase for printing presses.”

The invention consists in so constructing chases that the pages of type placed therein may be tightened and firmly secured in position by means of eccentrics, or volutes, or scrolls governed by a key or other suitable means to cause them to press against the setting rules, and by them upon the pages of type, to secure them tightly in the chase, and on turning the eccentrics, volutes, or scrolls in an opposite direction, the type is immediately released from pressure, and may be removed or changed with ease. “By this means I avoid the necessity of binding the pages of type with string, I also prevent the type from slipping or falling into ‘pie,’ and obtain a considerable saving of time.”

To the sides of a rectangular wrought-iron frame are connected the setting rules by means of screws, which pass freely through the sides of the frame so as to have a certain play therein, and at their ends they are screwed into the setting rules, which by this means have sufficient play to allow of their being pressed against or drawn back from the pages of type contained in the frame. In suitable apertures in the sides of the chase, the eccentrics, volutes, or scrolls are placed in rules; eccentrics may also be used to secure the chase, when required, between flanges on the margin of the press.

“In order to the better tightening of the type in the chase, I cover with any suitable elastic material both sides of the setting rules and the sides of the chase against which they press.”

[Printed, 10d. Drawings.]

A.D. 1861, October 28.—N° 2699.

CLARK, WILLIAM.—(*Communicated by Alphonse Edouard Aufray and François Germain Leopold Tabar, of Paris.*)—(*Pro-*

visional protection only.)—"Improvements in the means of obtaining and producing printing surfaces."

This invention relates to printing blocks for typographic and other purposes in which the characters or designs are obtained in relief, and also to copper plates in which the designs are sunk in the surface, for printing either paper or fabrics. The blocks or plates are formed as follows:—A slab of slate is first suitably prepared and polished, on which surface is engraved or sunk any suitable design with an ordinary graving tool. The sunk design being completed, the slate slide is then prepared by the ordinary means, and submitted to a galvanic bath of salts of copper, which causes a layer of copper to be deposited on the slate, which penetrates into all the hollows of the designs and becomes solidified; the copper on being detached from the slate furnishes a surface or block in relief, which is then mounted and employed as usual. Instead of slate any other schist of a slaty or silicious nature may be employed, not subject to the action of the galvanic bath, and sufficiently soft to bear the action of a graver. Plates of bitumen, asphalte, or similar material may also be employed.

[Printed, 8d. No Drawing.]

A.D. 1861, October 30.—N° 2725.

COOK, WILLIAM, COOK, HENRY.—"Improvements in printing telegraphs."

The invention relates to that description of instrument in which the visible signals that are made on the paper are effected by the transmission of an electric current. It consists in preparing the paper with a salt of manganese, which for various reasons will be found more advantageous and useful than the chemical agents usually employed for analogous purposes. Before submitting the paper to the chemical solution or salt of manganese, it should be prepared with an alkali, so that any free acid contained in the paper or in the solution of manganese may be neutralized, and prevented from acting injuriously during the action of the current of electricity on the manganese salt. The alkali will also prevent the decomposed salt from being re-dissolved in the solution. The solution of the nitrate of manganese, which is the preferable salt, should be of about the specific gravity of 1.320, and before preparing the paper with the solution of nitrate of manganese, it should be steeped in an alkaline solution, say, mono-carbonate

of soda or potash, the solution well drained off, and afterwards soaked in the solution of nitrate of manganese, when the paper will be ready for use.

[Printed, 4d. No Drawing.]

A.D. 1861, November 5.—N° 2781.

BOURQUIN, JOHN PETER.—(*Provisional protection only.*)—"Improvements in ornamenting the covers of photographic albums, books, writing-cases, and other like articles."

The invention consists in applying thereto decorations resembling inlaid woods, known as marqueterie and wood mosaics, by printing upon veneer mosaics and other designs, and thereby imitating differently coloured woods arranged in patterns.

"Having selected, say, a veneer of white wood, I attach the same to cloth by cement before printing, to protect from breaking or splitting under the pressure to which it will be subjected. The wood being damped is placed in the lithographic press to receive the prepared design, which is then transferred thereto in the same manner as coloured designs are applied to paper. When printed with the requisite number of colours to complete the pattern the wood is laid aside for the colours to harden, and when this is accomplished the wood is polished and varnished, and may then be applied to the book or other cover in the form of a border, corner pieces, lines, panels, or even as an entire covering for the lid or for the back, as may be thought desirable."

[Printed, 4d. No Drawing.]

A.D. 1861, December 5.—N° 3055.

HENRY, MICHAEL.—(*Communicated by Alexandre Adrien Despréaux, of Paris.*)—"Improvements in printing and ornamenting textile fabrics, paper-hangings, and other materials, and in surfaces and apparatus for such purposes."

The invention consists: 1. In the production of figures, devices, or designs on textile fabrics, paper-hangings, artificial leather, and other materials where pressure is used, among other results figured effects resembling those obtained by jacquards and tapestry or needlework. For producing the printing, figuring, or pattern surfaces, the device or design is traced as a sort of openwork on a plate or slab. The edges of the lines of the devices or work thus cut out are sharp instead of having seams or inequalities as in cast patterns.

The device cut out is then rivetted or fastened down to a plate, which serves as a back or mount, and the connecting strips left between the device lines can now be removed. The back or mount plate, with the device thereon, is fastened down to a block, slab, or foundation of marble or other material. The colours are applied upon the raised parts or the reliefs or smooth portions of the printing or figuring surfaces used, so that these parts or portions imprint the colours, while the hollows serve as spaces. In one arrangement of the printing machinery two rails are supported on a framework, at one end of which is a travelling carriage carrying a turntable or table on which are a pair of rails, which by shifting the table accordingly, will form a continuation of those on the framework. The table is capable of turning round to the required extent. The carriage travels along a railway from one end of the machine framework to the other. Three rollers are supported in the framework, round the second and third of which is an endless band of sufficient length to extend from end to end, and the third and topmost are also connected by a similar but thinner band, which comes in contact with the material while being printed, affording an elastic pressure thereon. Below the lowest of these three rollers is a fourth roller at a distance corresponding to the depth of the block. The fourth roller is worked by a crank handle, or by a crank shaft and pinion and trains of wheels. The blocks, which may be connected together in two's or more, are run on the rails of the framework and pressed between the two lowest rollers, and when one block has passed it is detached from the next behind and moved on to the turn-table on the carriage, which is then unfastened from that end of the framework and run round to the other end, the table being turned sufficiently to bring the front end of the block forward ready for being again pressed between the rollers, between which the second one may be passing meanwhile. The material to be printed or figured is delivered from off a beam or roller and brought under the third roller, where it is printed by the block, and is thence carried over guide rollers to a frame, which is so caused to move by cranks and rods worked by the delivery rollers as to cause the material to fall in regular folds. A device may be printed in different colours by using printing surfaces with different colours, and by having a number of plates or surfaces on which different colours are applied, and which are duly arranged or brought into proper register.

[Printed &c. Drawings.]

A.D. 1861, December 9.—N° 3081.

MENNONS, MARC ANTOINE FRANÇOIS.—(*Communicated by François Debons and Théobald Denny, of Paris.*)—"Improvements in the production of relief designs on metallic surfaces for general printing, gaufering, and embossing purposes."

The face of the plate to be operated on being thoroughly polished, is coated uniformly with a varnish formed of rectified benzine, caoutchouc, rectified oil of naphtha, and essence of turpentine, and heated so as to volatilize the solvents of the caoutchouc. It is then laid on an iron table heated to about 120° (cent.), by which the most volatile constituents of the caoutchouc are carried off, leaving an adherent layer of varnish, which finally attains a straw yellow tint when the plate cools. The design is then traced through the coating of varnish with a sharp implement, but one not hard enough to act on the metallic surface beneath. The surface thus prepared is then uniformly coated with a ground protecting solution of virgin wax, essence of turpentine, and oil of naphtha. The excess of wax is then removed by a clearing solution of rectified oil of naphtha or petroleum and sulphuric ether. A metallic conductor is then secured to the plate, the obverse and edges of which are coated with an insulating varnish. This done, the plate being connected with the zinc element of some constant voltaic battery, is passed to an ordinary electrotype trough charged with a solution of cyanide of copper, in which is immersed a sheet of copper of corresponding surface communicating with the opposite pole. A feeble voltaic action is then maintained for about 90 minutes, the solution being at a temperature of from 50° to 55° (cent.). In this operation the unprotected lines composing the design are filled up by a thin sharp deposit of copper adhering perfectly to the surface of the plate, which on being withdrawn from the bath is freed from its varnish by careful rubbing with a cleansing compound made of Venetian tripoli, reduced to paste by alcohol or sulphuric ether. The design in relief thus brought to view is found to be the exact reproduction of that traced on the varnish, the lines being neither thickened nor fined down to any perceptible extent. The plate, being then ready for the ground etching, is connected with the anode of the battery, and immersed in an electrotype etching bath, in which is placed a clean sheet of copper in communication with the zincode. Under the action of the current the

surfaces unprotected by the copper deposit are dissolved away, molecule by molecule, with the utmost regularity, the equivalent of the metal thus reduced being precipitated on the plate forming the opposite pole.

[Printed, *4d.* No Drawing.]

A.D. 1861, December 11.—N° 3107.

BROOMAN, RICHARD ARCHIBALD.—(*Communicated by Joseph Robert Prevost, of Paris*).—(*Provisional protection only*).—"Improvements in decorating or printing upon china, porcelain, earthen and other like wares."

In carrying out this invention, as many printings are required as there are colours in the design to be reproduced. The paper is prepared by being first coated with a filtrate of pulp size and water, then dried and pressed between zinc plates; it is then coated with a filtrate of gum and water and pressed as before. The printing is effected by mordants, and the paper is powdered over as many times as there are printings or colours.

2. "The colours are the same as now used for painting on china by the hand, but I add to them solvents, which give in the washing off of the transfer paper."

3. The stones are prepared in the ordinary way of lithographic printing, this mixture of weak printing varnish ($\frac{1}{10}$), copal varnish ($\frac{1}{20}$), being substituted for the ordinary printing varnishes, which are too greasy. "When the design upon the stone is charged, I dry the stone by a fan, and when perfectly dry, so that no moisture may affect the glaze of my paper, I apply the paper and print in the ordinary manner. I print on the paper with a colourless mixture, for if printed in vitrifiable colours, the grain, though very fine, would speedily wear away the design."

4. "Order of superposition of the colours.—I begin with the deepest colours, as they make the finish to the pictures, and as they are reversed in the transfer the first colours applied become uppermost; if the deep colours were applied over the light colours they would soil them. Reds require much care, as they easily soil the paper. Therefore, the stone as before stated, must be thoroughly dry to prevent the paper coming away damp, and the colour from becoming fixed on the white parts."

5. The sheet when printed has the colour applied to it in powder, and is left to dry.

6. The impression on the paper is transferred to the ware.

7. The articles in china, porcelain, &c. are then placed in muffels and in the stove, and the firing proceeds as in the ordinary manner when the decoration has been applied by hand.

[Printed, &c. No Drawing.]

A.D. 1861, December 20.—N° 3192.

NIAY, GUSTAVE.—(*Provisional protection refused.*)—"An improved method of utilizing bags, wrappers, or other similar articles made of paper or other materials, and in any form."

"This invention consists in rendering bags, wrappers, or other similar articles made of paper or other materials, and in any form, useful, not only to contain articles sold by shopkeepers or others, but also as a medium for advertising the businesses of several persons, or other forms of advertisements, by printing same on the outside of bags, or on one or both sides of wrappers or other articles used for making up parcels or packages."

[Printed, &c. No Drawing.]

A.D. 1861, December 28.—N° 3248.

HARLAND, JOHN WHITFIELD.—(*Provisional protection only.*)—"An improvement or improvements in the manufacture of wood and other types, or substitutes therefore, or furniture used by letterpress printers."

The invention relates to the material of which the types are formed, and also to the process of manufacturing the same. "I take paper (or the pulp of which paper is made), horn raspings or shavings, bone dust, wood shavings, or sawdust of the same or other substances in a state of comminution. A quantity of one or more of the above substances being provided, I saturate it with size or fish glue, or other suitable cement. The material thus prepared is next pressed into a matrix of a form to give it the shape of the type or furniture required. Mechanical pressure assisted by heat is next applied, which must be sufficiently great to make the material take accurately the

“ shape of the matrix. The operation being performed, the type
“ or furniture is removed from the matrix, and after being dried
“ is, if necessary, reduced to the correct size for being used in the
“ printing press.”

[Printed, 42. No Drawing.]

INDEX OF SUBJECT MATTER.

[The numbers refer to the page in which the paragraph containing the subject commences.]

- | | |
|---|--|
| <p>Accounts :
 Printed form of,
 Dick, 75.</p> <p>Addresses :
 Machine for printing,
 Newton, 103.
 Payles, 135.
 Harrild, H., & Harrild, H.,
 135.</p> <p>Automatic spacing :
 Pelt, 170.</p> <p>"Automaton register" :
 Lewis, 159.</p> <p>Bags :
 Advertisements on,
 May, 177.</p> <p>Bank notes :
 Printing,
 Moss, 35.</p> <p>Blankets (printers') :
 Manufacture of,
 Walker and Barnes, 87.
 Clark, 68.
 Not off,
 Wood, 90.</p> <p>Block-printing. <i>See</i> Printing.</p> <p>Book-covers, &c. :
 Ornamenting,
 Tuckett, 135.
 West, 133.
 Hargrave, 175.</p> <p>Book-edges :
 Cutting,
 West, 133.</p> | <p>Bronze :
 Printing on,
 Hauerichter and Goltzstein,
 17.</p> <p>Breviotype :
 Collinson and George, 91.</p> <p>Card printing :
 Pitman, 11.</p> <p>Casting :
 Improvements in,
 Smith, 80.</p> <p>Ceramic substances :
 Ornamenting,
 De la Perle, 162.</p> <p>Chairs :
 Improved form of,
 Wynants, 171.</p> <p>China :
 Printing on,
 Lauder, 89.
 Hroeman, 176.</p> <p>Chromographic printing. <i>See</i>
 Printing.</p> <p>Chromo-lithography :
 Lafon, 156.
 To increase impressions in,
 Hroeman, 77.</p> <p>Collodion :
 Printing plates from,
 Mallard, 89.</p> <p>Colouring photographs. <i>See</i>
 Photographs.</p> |
|---|--|

- Colour printing. *See* Printing.
- Colour printing machine :
Smith, T. J., 101.
- Composing cases :
Poulter, 122.
- Composing machine :
Cunningham, 6, 63.
Young, 28, 65, 123.
Felt, 170.
- Composing type. *See* Type.
- Copying press :
Muir, 3.
- Cork :
Printing on ;
Downing, 154.
Embossing ;
Downing, 154.
- Cutting printed sheets :
Wilkinson, 78.
Applegath, 89.
- Cylinder printing type :
Petter and Galpin, 82.
Saleres, 104.
- Cylinder press :
Feeding ;
Napier, 92.
- Copies :
Printing ;
Godchaux, 97.
- Copper-plate printing. *See* Printing.
- Designs :
Enlarging or diminishing ;
Collins, 12.
Mackenzie, 67.
Johnson, 156.
Transferring ;
Girard and Wohlgenuth, 24.
Smith, Wm., 41.
Smith, W., 102.
Production of ;
Cunningham, 33.
- Detergent for type :
Prentiss, 135.
- Dressing type. See* Type.
- Distributing machine :
Cunningham, 6, 33.
Young, 28, 65, 123.
Felt, 170.
- Distributing type. *See* Type.
- Earthenware :
Printing on ;
Northen, 31.
Lauder, 39.
Ornamenting ;
Shaw, I., and Shaw, J., 121.
- Electric printing. *See* Printing.
- Electric telegraph :
Use of reservoirs in the ;
Baggs, 24.
Wheatstone, 28.
Improvements in the ;
Brooman, 46.
- Embossing Paper. *See* Paper.
- Embossing dies :
Wood, 90.
- Embossing machine :
Clark, 71.
Bagster, 97.
Davies, 125.
Turner and Dunnett, 162.
- Embossing press :
Self-acting apparatus for ;
Taylor and Butler, 120.
- Endless paper :
Printing on ;
Mason, 46, 79.
Wilkinson, 78.
Davies, 85.
Applegath, 89.
Sharp, 166.
- Engraving :
By pressure ;
Wallis, 60.
- Envelope machine :
Clark, 71.
- Envelope printing :
Pitman, 11.
- Feeding Tables :
Conisbee, 3.
- Feeders (self) :
Sprye, 104.

- "Overlay" printing. *See* Printing.
- Paper :
 Embossed ;
 Bell, 35.
 Lace ;
 Bell, 35.
 Continuous ;
 Mason, 46.
 Sharp, 155.
 Coloured ;
 Luis, 54.
 To produce watermarks, &c. on ;
 Smith, J., & Smith, W. H., 55.
- Paper hangings :
 Imitating wood on ;
 Thibault, 18.
 Machine for arranging the
 colours of ;
 Luis, 54.
 Printing ;
 Mitchell, 151.
- Perforated plate :
 Inking ;
 Newton, 131.
- Perforating machine :
 Besley, 84.
- Platten press. *See* Press.
- Oil cloths :
 Imitating wood on ;
 Thibault, 18.
- Oil colours :
 Printing in ;
 Winkler, 23.
- Photographs :
 Lithographing from ;
 Newton, 9.
 Colouring ;
 Baxter, 42.
 Printing ;
 Asser, 107.
 Flounders, 126.
 Beatty and Alexander, 138.
 Hooman and Maliszewski, 150.
 Printing surface from
 Eidlitz, 111.
 Reproducing ;
 Flounders, 126.
- Photographic albums :
 Ornamenting ;
 Gillett, 146.
- Porcelain :
 Ornamenting ;
 Clark, 147.
 Printing on ;
 Brooman, 176.
- Press :
 Cylinder ;
 Increased production by ;
 Applegarth, 10.
 Petter and Galpin, 82.
 Napier, 92.
 Type table for ;
 Ulmer, 110.
 Inking rollers for ;
 Russell, 16.
 Lithographic ;
 Brooman, 77.
 Newton, 78.
 Joy, 141.
 Mennons, 163.
 Job ;
 Newton, 152.
 Copying ;
 Muir, 3.
 Obtaining and transmitting
 motive power in the ;
 Black, 37.
 Improved blankets for the ;
 Walker and Barnes, 37.
 Table, movement of
 Ingle, 1.
 Gray, 5.
 Mason, 79.
 Self-acting feeder ;
 Mason, 45.
 Pneumatic ;
 Bentley, 55.
 Platten and cylinder combined ;
 Wheatley, 4.
 Stamping ;
 Reynolds, 104.
 Turner and Dunnett, 162.
 Platten ;
 Tregnakis, 1.
 Porteus and Burke, 68.
 Construction of the ;
 Napier, 42.
 Porteus and Burke, 68.
 Morse, 70.
 Feeding apparatus for the ;
 Morse, 70.
- Printed Sheets :
 Delivering ;
 Grove, 146.
 Newton, 152.
 Sharp, 153.
 Mennons, 163.

Printers' blankets. *See* Blankets.

Printing :

- Chromographic ;
Muller, 15.
- Cylinder ;
Whittaker, 64.
Henry, 172.
- Telegraphic ;
Hughes, 28.
- Photographic ;
Stius, 56.
Asser, 107.
Beatty and Alexander, 126.
Hooman and Maliszewski, 150.
- Block ;
Walker and Barnes, 97.
Larsonnier and Blanche, 26.
Draper, 51.
Lebourgeois, 86.
Applegath, 94.
- Copies ;
Godehaux, 97.
- Colour ;
Grant, 20.
Muir, 46, 72.
Tearne, 86.
White and Parby, 124.
Jacob, 163.
- China and earthenware ;
Lauder, 20.
- Transfer ;
Dolby and Gates, 41.
- Telegraphic ;
Newton, 44.
Thompson, 57, 80.
Dujardin, 60, 166.
Siemens, 61.
Kolland, 81.
Banks, 165.
Cook, 172.
- Maundrills for ;
Coates, 47.
Whittaker, 64.
- Ornamental ;
Muir, 72.
- Show cards ;
Davies, 125.
- Electric ;
Wheatstone, 26.
Thomson, 80.
Kolland, 81.
Cook, 172.
- Copper-plate ;
Bagster, 97.
Dulos, 166.
Sheppard, 120.
- Cheques ;
DeLauretia, 114.

Printing—*cont.*

- Bank notes, &c. ;
DeLauretia, 114.
- Overlay ;
Russell, 120.
- Railway tickets ;
Parsons, Dowling, and Dowling, 151.
- On cork ;
Downing, 154.
- Printing cylinders :
Metal ;
Fulton, 94.
Dalglish, 137.
- Engraved ;
Glen, 126.
- Shells of ;
Fulton, 94.
- Printing frame ;
Photographic ;
Hart, 70.
- Printing machines :
Self-feeding apparatus for ;
Sprye, 104.
- Printing surfaces :
Rotatory tools for cutting blocks for ;
Hamilton, T., and Hamilton, J., 2.
- Copper ;
Schaub, 9.
- Electrotyped ;
Jacquin, 16.
Johnson, 19.
Newton, 81.
Bradbury, 40.
Collins, 40.
Beatty and Alexander, 126.
Clark, 171.
Mennons, 175.
- Improved casting for ;
Service, 25.
- Composite ;
Schaub, 20.
- Enlarged ;
Johnson, 156.
- Reduced ;
Johnson, 156.
- For maps ;
Betts, 30.
- From photographs ;
Eidlitz, 111.
Dalglish, 137.

Printing surfaces—*cont.*

- Etched;
 - Doley, C., Bigland, E., and Worrall, T., 32.
 - Barre, J. H., & Barre, J. M., 86.
 - Collins, 87.
 - Lee, 92.
 - Dalglith, 137.
- Casting;
 - Smith, 50.
- Ornamenting;
 - Tearne, 56.
- Impressed;
 - Wallis, 60, 115.
 - Henry, 173.
- New material for;
 - Patrick, 72.
- Pattern rollers for;
 - Hughes and Hill, 149.
- Punching;
 - Macdonald, 74.
 - Lawson, 98.
 - Newton, 103.
- Engraved;
 - Tirebuck, 76.
- Metal;
 - Collins, 87.
 - Lewis, 159.
 - Mennons, 175.
- Stone;
 - Collins, 87.
 - Lee, 92.
 - Lewis, 159.
- Electro-deposit;
 - Besley, 89.
- Relief;
 - Besley, 89.
 - Dulos, 105.
 - Newton, 129.
- Cylinder;
 - Brooman, 94.
- Plates for;
 - Brooman, 94.
- Intaglio;
 - Dulos, 105.
- Compressed wood;
 - Wright, 119.

Proof cylinder :
 Wilkinson, 78.

Pyroxylyene varnish. *See* Varnish.

Quadrats :
 Manufacture of;
 Schaub, 36.

Railway tickets. *See* Printing.

Registering machine :
 Thomas, 13.
 Imray, 35.

Rollers, printing :
 Metallic;

- Whittaker, 64.
- Macdonald, 74.
- Parkes, 83.
- Lawson, 98.
- Glen, 135.
- Hughes and Hill, 149.

Engraved;
 Brooman, 94.
 Glen, 135.

Copper;
 Parkes, 74.

Embossing;
 Hughes and Hill, 149.

Rubbing type. *See* Type.

Ruling machines :
 Feeding;
 Clark, 145.

Sensitive paper :
 Printing on;
 Nissen, 115.

Silver :
 Printing on;
 Bauerriechter and Gottgetreu
 17.
 Winkler, 23.
 Jacob, 168.

Spaces :
 Manufacture of;
 Schaub, 36.

Spacing :
 Automatic;
 Felt, 170.

Stamping :
 Books, papers, tickets, &c.
 Brooman, 38.
 Salter, 65.
 Shipman, 65.

Stamping press :
 Self-inking apparatus for;
 Taylor and Butler, 120.
(See also Press.)

Stencilling :
 Improved apparatus for;
 Morgan, 52.
 Imitation of;
 Kerahaw, 119.

Stereotyping :
 Moulds for ;
 Roasting, 100.
 Wood, 124.
 Dellagana, 140.
 Conthupe and Waltham, 100.
 Improvements in ;
 Naylor, 155.

Stereotype plates :
 Hughes, 116.
 Finishing circular ;
 Dellagana, 107.
 Planing ;
 Dellagana, 107.
 Segmental ;
 Agrio, 145.

Stoneware :
 Printing on ;
 Northen, 81.

Telescopic printing machine :
 Hughes, 82.

Telegraph :
 Hydraulic ;
 MacNab, 68.

Telegraphic printing. *See* **Printing.**

Tickets, &c. :
 Stamping of ;
 Broomau, 66.
 Salter, 55.

Tobacco-pipes :
 Printing on ;
 Southern, 114.

Tortoiseshell :
 Imitation of
 Wiley, 144.

Transfer printing. *See* **Printing.**

Type :
 Composing ;
 Cunningham, 6.
 Young, 28, 100.
 Newton, 66.
 George, 159.

Dressing ;
 Moore, 60.

Distributing ;
 Cunningham, 6.
 Young, 28, 100.
 Newton, 66.

Type—cont.

Rubbing ;
 Moore, 60.
 Payer, 114.

Manufacture of ;
 Schau, 9, 24.
 Girerd and Wohlgemuth, 24.
 Johnson and Atkinson, 97.
 Low, 118.
 Payer, 114.
 Benlowski, 186.
 Harland, 156.

Compressed wooden ;
 Wright, 110.

Mated ;
 Hughes, 116.

Cases ;
 Poulter, 122.
 Benlowski, 124.
 Bailey, 165.

Cleaning ;
 Prentiss, 186.

Wooden ;
 Harland, 156, 177.

Type table :
 Ingle, 1.
 Gray, 5.

Motion of ;
 Annable and Bench, 107.
 Ulmer, 110.
 Newton, 152.
 Birkbeck, 156.
 Ingle, H., and Ingle, J., 164.
 Brunner, 106.

Type composing. *See* **Composing machines.**

Type setting. *See* **Composing type, &c.**

Varnish :
 Pyrosylene ;
 Barnwell and Rollason, 120.

Watermarks, devices, &c. *See* **Paper.**

Wood engraving :
 Superceding ;
 Gallii, 12.

Wooden types. *See* **Type.**

Wright's mould-making machine ;
 Service, 25.



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